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ASSESSMENT OF TOP MANAGEMENT SUPPORT FOR HEALTH PROMOTION PROGRAMS AT MILITARY MEDICAL TREATMENT FACILITIES

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The MHSS is behind in its implementation of important UM strategies. Prior to this study, there had not been a data-based assessment of top management support at the MTF level, where these strategies will be implemented, to determine the feasibility of expanding the present utilization management focus by incorporating demand management strategies to use more comprehensive and efficacious health promotion (HP) programs. This graduate management project undertakes a more formal evaluation to collect reliable and valid data describing the current level of MTF top management support, understanding, and performance-outcome expectancy for more comprehensive HP programs. The relevant literature has been reviewed: 1) to discuss the well documented factors predicting individual health-related behaviors; 2) to discuss current advances in the measurement and monitoring of general health status; and 3) to illustrate how several mature civilian health services organizations and numerous HP programs have implemented cost effective, efficacious demand management strategies to reduced the need and demand for health services utilization while improving beneficiary health status. In light of these current concepts, this descriptive study of current attitudes and opinions of Army and Navy MTF top management compiled from mailed survey responses is intended to be used as a basis for strategic planning by headquarters activities to facilitate the development and implementation of more comprehensive utilization management strategies.

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Abstract

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ASSESSMENT OF TOP MANAGEMENT SUPPORT FOR HEALTH PROMOTION PROGRAMS AT MILITARY MEDICAL TREATMENT FACILITIES

INTRODUCTION

Persistently rising medical costs have been declared a crisis by government and business health services systems in the United States (US). Despite high and increasing health care expenditures, overall US health status does not compare favorably with other developed nations who are spending less, and universal access in the US to basic health care has not been achieved. US health care expenditures exceeded 1 trillion dollars in 1995 (Kovner, 1995). In 1993, 90% of admissions and 70% of all expenditures for medical services were directed at the diagnosis and treatment of preventable disease (Adler, 1995). Individual health status or morbidity accounts for only a portion of the demand for medical care. Individual behavior, preferences, and cultural perceptions regarding the need for medical care are also significant contributors (Kaman, 1995; O'Donnell & Harris, 1994). Managing health services utilization, commonly known as utilization management (UM), is key to the success of all health services organizations that must transition from the traditional fee for service (disease and work load-based) reimbursement system to the current framework of managing the health status for covered lives over extended time periods with per capita reimbursements.

Since the 1970s, responses to escalating health care costs have focused primarily on supply-side strategies such as: 1) limiting resources (reimbursements, technology, facilities, providers), 2) rationing the medical services offered (managed care gatekeepers, and reimbursement tied to diagnostic related groups with specified inpatient lengths of stay, or 3) modifying provider behaviors (practice guidelines and case management). While hospital admissions, procedures, and ancillary services have decreased, costs continue to climb. Managing the access to medical services through supply-side strategies alone does not change why (the need and demand) beneficiaries use health services (see Figure 1).

Figure 1. Health Services Utilization Model

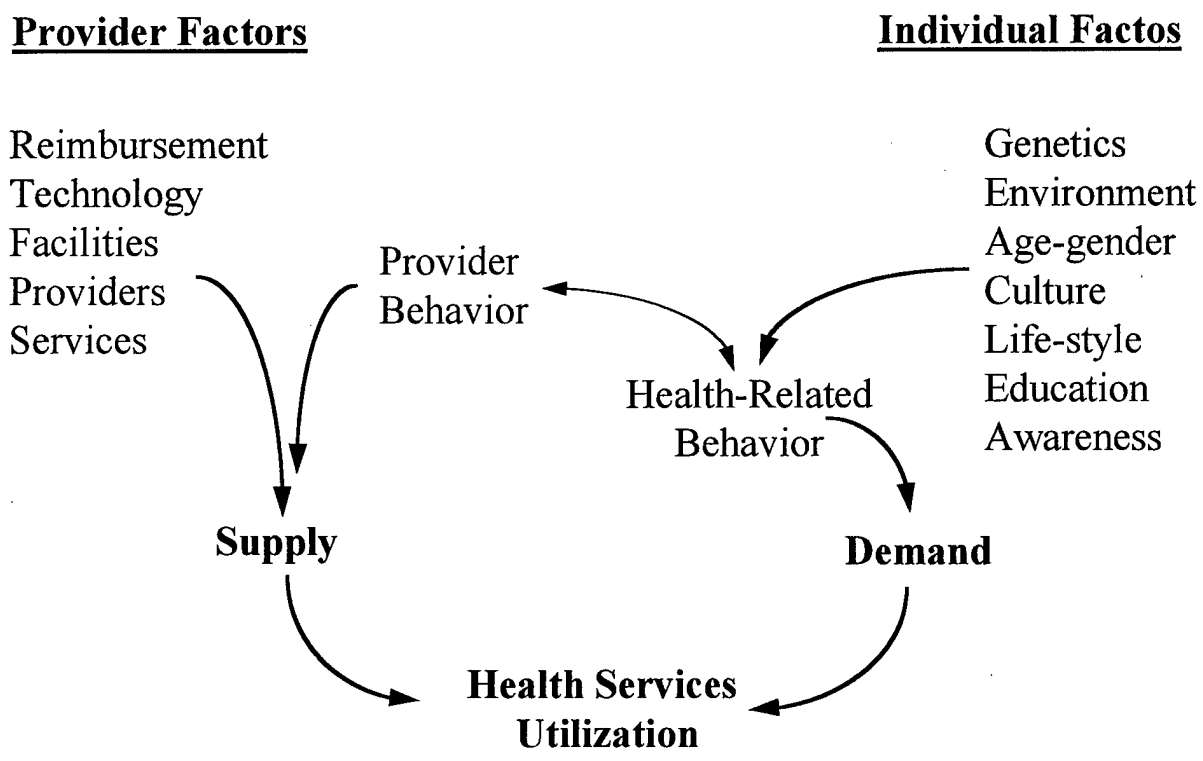


Figure 1 is a systems approach model from a health care manager's perspective designed for this paper. The various provider (individual and organizational) and individual patient decision-making factors have been well documented in the literature to affect health services utilization (HSU). These elements have been organized within a framework that has been developed and validated over several decades, now labeled the Health Belief Model (HBM) (William & Torrens, 1993; Feldstein, 1993; Jacobs, 1991; and Janz & Becker, 1984). These factors can be used to predict individual health-related behaviors including preventive health, illness or sick-role, clinic visit, and compliance behaviors vital to the MHSS goal of ensuring military and medical operational readiness and beneficiary health status. Figure 1 was re-designed to facilitate a discussion of the potential for clinical intervention and utilization management strategies that would significantly change MHSS HSU. In a simplified manner, HSU follows the principles of supply and demand. An individual in need of a service has access to the service, and access is available to those that need the service. Decreases in HSU can, therefore, be expected with a decrease in need or access. The problem is considerably more complex because the need or demand for medical services is not just caused by the existence of a medical problem or illness; and the supply of services is not simply a matter of resource availability. In fact, the complex decision to use health care services involves wide variations in accepted professional medical practice, patient and provider knowledge, media and marketing campaigns, individual health status (both perceived and real), cultural bias and preferences, and financial or organizational incentives.

The contemporary focus has primarily been limited to provider-directed, supply-side strategies; and has achieved only partial results. First, providers influence HSU with both

supply- and demand-side pressures (Feldstein, 1993; Jacobs, 1991). The availability and access to specialty types and practice groups, and the rules of engagement under which they practice affect the supply of health care resources. Clinical practices modify both supply and demand through referral patterns and services directly prescribed. How they affect patient beliefs about their own individual health status and the efficacy of medical care in changing their health status primarily directly changes patient-induced demand for HSU. And second, the need and demand for health care services are significantly driven by individual factors. By addressing these factors that have been shown to account for "why" certain individuals use particular services, "unnecessary" demand for HSU can be reduced. Modifying individual life-styles in favor of health-seeking behaviors prevents and reduces the need for medical care. Promoting individual health care responsibility with increased self-help and self-care skills for acute and chronic illnesses reduces illness behavior demand causing individuals to access the health care system. Through informed clinical decision-making practices, appropriately educated and well informed health care consumers will make more judicious use of efficacious medical services (Wennberg, 1990).

Problem Question

Health services utilization management is key in the current U. S. Health policy framework that has shifted from cost-based reimbursement to prospective payment systems with increasing national health care cost-containment pressures. The MHSS has likewise been forced to reduce costs in the face of smaller budgets that are no longer responsive to the previous workload-driven rules of engagement. Utilization management has traditionally

focused on indicators of inpatient use rather than annual health care costs per beneficiary. To succeed in the current and foreseeable budgetary constraints, demand management must become a key institutional and ambulatory care utilization management strategy. What is the level of top management support and the feasibility of developing more comprehensive health promotion programs at military medical treatment facilities (MTF)?

Conditions which prompted the study

With long-term enrollment of its beneficiary population, the Military Health Services System (MHSS) is in an excellent position to establish a more cost effective health care delivery system that will be able to ensure operational medical readiness, contain the persistently rising costs of health care, and improve the general health status of its beneficiary population. To be successful, the MHSS must integrate comprehensive health promotion (HP) strategies with the delivery of necessary and appropriate medical services. Therefore, the MHSS must reengineer its approach from the present "work load-driven" and "disease care" emphasis to a radically redesigned and reconstructed "health care" system. More comprehensive HP strategies which include the expectation of personal health care responsibility must address beneficiary need and demand for health and medical services through efficacious and cost effective demand management programs already documented in the literature.

Demand management incorporates the concepts of providing all medical care when essential and preventing the requirement for services when possible. By reducing or preventing the demand for health services in the first place, health care resources presently

employed for "unnecessary" medical services can be shifted to increase access and provide key medical care to additional beneficiaries while improving their overall health status. HP is not just another medical program to be implemented with redirected resources, but a fundamental rethinking of the process by which we maintain or improve operational medical readiness and health status. By addressing demand management, health promotion programs become key utilization management strategies required to ensure the success of the MHSS missions.

Over several months, personal and telephonic conversations with military health promotion directors, researchers, and medical department heads in the Army, Navy, and Air Force suggested that a range of attitudes exist regarding HP and how it ties into utilization management: 1) lack of awareness or understanding; 2) skepticism regarding the cost effectiveness of HP programs reported in the literature; and, 3) "sold on the concept," but confronted by too many barriers to implement effective programs locally. Expressed in published interviews, the Surgeons General of the Army, Navy, and Air Force, along with key officials of other health-related federal agencies, embraced the importance of comprehensive health promotion programs in principle (U.S. Medicine, January 1996). General guidance has directed the development and implementation of health promotion programs in the three military services in their Direct Care and TRICARE programs. However, current MHSS strategies focus predominantly on utilization management issues of institutional disease care practice patterns and secondary health promotion and disease prevention measures aimed at risk assessment and management. Other demand management interventions (such as healthcare telephone and computer information lines and self-help or self-care programs for

chronic disease) shown to be efficacious in the current literature are sporadically implemented or under preliminary consideration and development.

Mature health services organizations (HSO), started in the late 1940s and early 1950s, such as the Henry Ford Health System in Detroit, Group Health Cooperative of Puget Sound, and Kaiser-Permanente Medical Programs of California have moved away from the narrow focus of cost containment to embrace and empower consumer and provider interests (Kissick, 1994). These organizations have combined workable teams of health care personnel with prospective per capita reimbursement to significantly improve cost effectiveness. Each of these HSOs has balanced primary elements of participant (providers, staff, and consumers) incentives and constraints to: a) preserve consumer and provider choice; b) establish enrolled populations allowing community management strategies to coordinate preventive services, health promotion, medical care, public health, and social welfare with anticipatory financing and rational resource allocation; c) finance services through community-weighted capitation and a non-profit status which increase access and benefit equity; d) deliver medical care through organized multi-specialty group practices with carefully organized facilities and services; e) demonstrate prospective budgeting that openly sets resource allocation priorities based on data driven population assessments; and f) ensure cost effective health care through patient-centered, comprehensive outcomes management that monitors health status outcomes as well as disease and treatment specific parameters (Kissick, 1994).

The MHSS lags significantly behind despite the fact that the MHSS has been concerned with the requirement for a healthy fighting force (operational medical readiness) and has functioned essentially in a managed care environment with an enrolled population for

many years. Opinions are varied as to why the MHSS is behind in its implementation of important utilization management strategies. As of yet, there has not been a data-based assessment of top management support at the MTF level, where these strategies will be implemented, to determine how likely each service is to expand its utilization management strategies by incorporating demand management using more comprehensive HP programs. To facilitate the process of strategy formulation and strategic implementation, a more formal evaluation through a feasibility study is, therefore, undertaken to assess the level of MTF top management support, understanding, and performance-outcome expectancy for more comprehensive HP programs.

Literature Review

Health Services Utilization and the Health Belief Model

The development of a comprehensive model that effectively identifies the various key factors and inter-relationships accounting for health services utilization has been ongoing since the 1950s (Janz & Becker, 1984). Health-related utilization behavior has been studied as preventive health behavior, sick-role behavior, illness behavior, clinic visit behavior, and compliance behavior. McKinlay's (1972) literature review of health services utilization studies identified six approaches used to explain utilization behavior (see Table 1).

Table 1. McKinlay's Six Approaches to Explain Utilization Behavior

Model	Components
Demographic	Age, Gender, Marital Status, Family Size , Residency
Social Structure	Social Class, Ethnicity, Education, Occupation
Social Psychological	Health Beliefs, Values, Attitudes, Norms, Culture
Economic	Family Income, Insurance Coverage, Price of Services, Provider/Population Ratios
Organizational	Physician Practice Organization, Referral Patterns, Use of Ancillary Services, Primary Source of Care
Systems	Combination of Some or All of the Above Components Showing Inter-relationships

Cummings, Becker, & Maile (1980) reviewed selected approaches and models used to explain health actions comparing their structural similarities and differences, and constructed a general classification of factors shown to affect health-related behavior (see Table 2).

Table 2. Factors Shown to Affect Health-Related Behavior

Factors	Component Examples
Accessibility to Health Care	Individual's ability to pay for services, Awareness and availability of health services
Evaluation of Health Care	Items affecting individual attitudes toward health care and beliefs about treatments and quality of care provided
Perception of Symptoms and Threat of Disease	Beliefs about individual susceptibility to and the consequences of the disease threat
Social Network Characteristics	Social interactions, social norms, and social structure, culture.
Knowledge About Disease	Awareness and information obtained from printed or interpersonal interactions, and experience
Demographic Characteristics	Age, gender, social status, income, education

Originally proposed by Rosenstock (1966), the Health Belief Model (HBM) has become the "organizing rubric" for the vast number of studies advanced to explain health actions (Janz & Becker, 1984). According to Janz and Becker (1984):

> The basic components of the HBM are derived from a well-established body of psychological and behavioral theory whose various models hypothesize that behavior depends mainly upon two variables: (1) the value placed by an individual on a particular goal; and (2) the individual's estimate of the likelihood that a given action will achieve that goal. When these variables were conceptualized in the context of

health-related behavior, the correspondences were: (1) the desire to avoid illness (or if ill, to get well); and (2) the belief that a specific health action will prevent (or ameliorate) illness (i.e., the individual's estimate of the threat of illness, and of the likelihood of being able, through personal action, to reduce that threat).

The early basic elements of the HBM as formulated by Rosenstock (1966) are reconstructed in Figure 2.

Figure 2. Basic Elements of Early Health Belief Model.

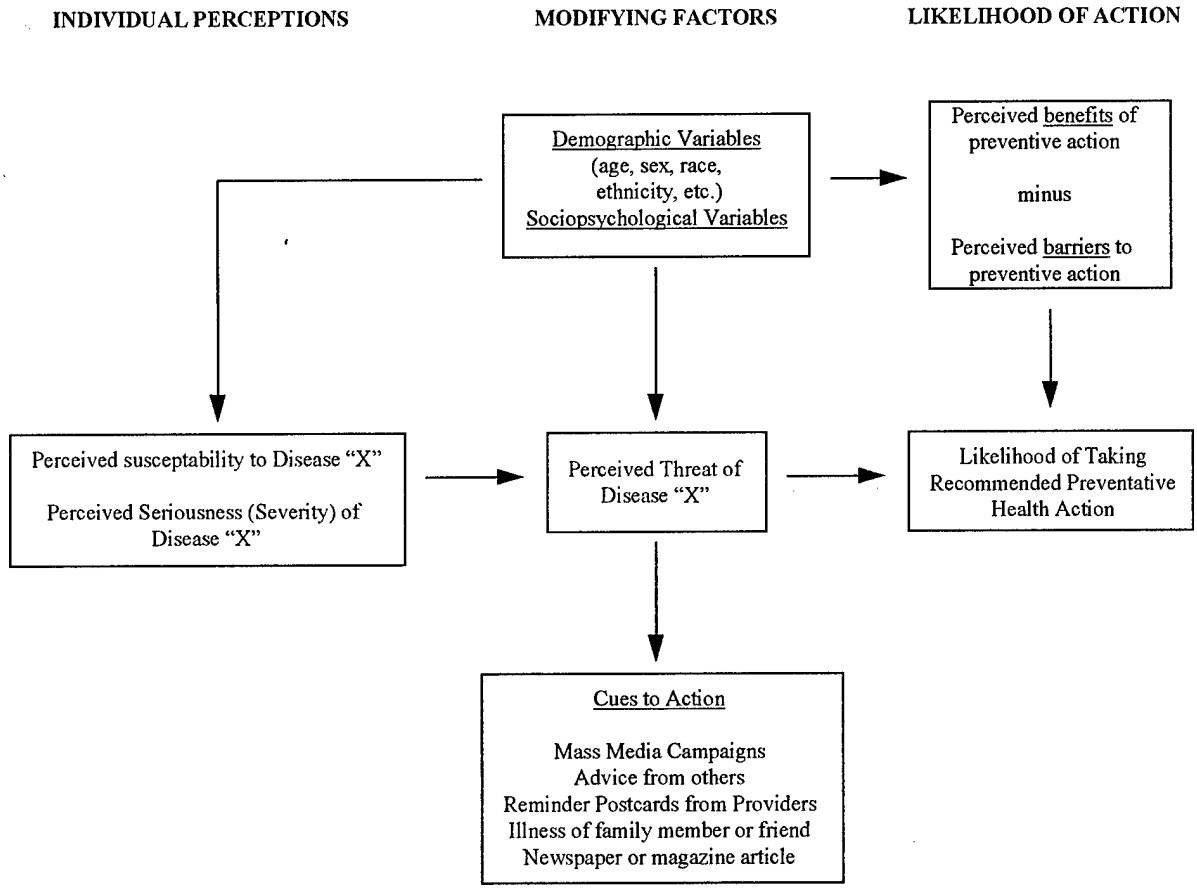
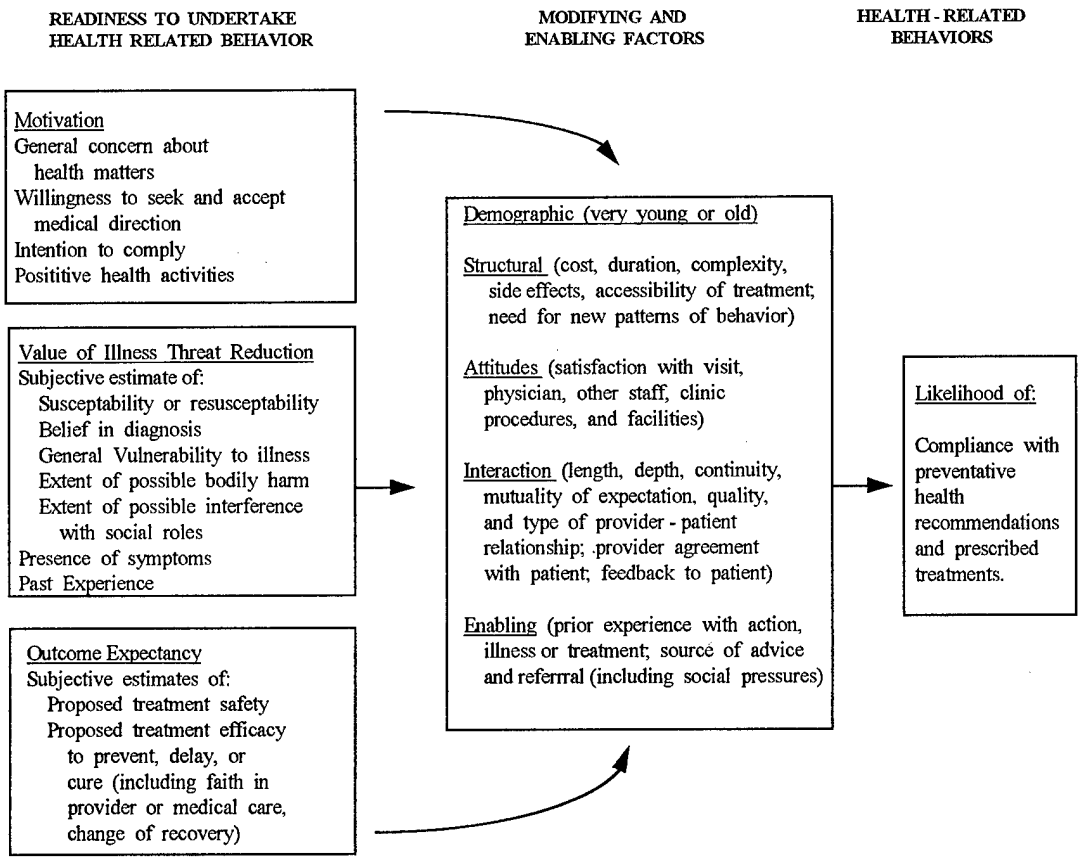


Figure 3 depicts how the HBM has been modified and applied to compliance and preventive health behaviors emphasizing individual "motivation" for health-related behaviors and beliefs about "outcome expectancy" (Becker & Maiman, 1975; Becker, Haefner, Stanislav, Kirscht,, Maiman, & Rosenstock, 1977).

Figure 3. Expanded HBM Explaining / Predicting Individual Health-Related Behaviors



Becker et al. (1977) further define other components as follows (see Table 3):

Table 3. Expanded HBM Factors

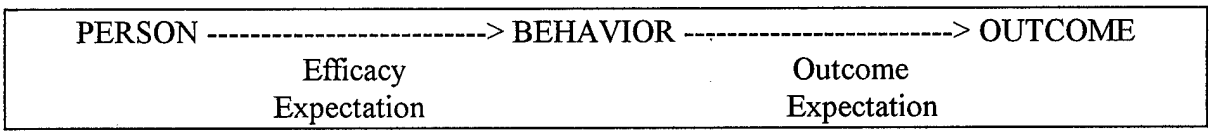
Factors	Definitions
Value of Illness Threat Reduction:	
Perceived Threat	Patient desire to avoid illness; or if ill, to get well again.
Perceived Susceptibility	Patient's perception of the risk that the condition will develop.
Perceived Seriousness	Patient's perception of the possible illness-related medical (death, disability, pain) and social consequences (how it affects work, family, and social relations).
Cue to action	Action threshold depends on internal factors (symptoms, information / knowledge, past experiences) or external factors (printed materials, other media, or social interactions)
Outcome Expectancy	Probability that compliant behavior will reduce the threat.
Perceived Benefits	Individual beliefs regarding the effectiveness of the various actions available to reduce the illness threat.
Perceived Barriers	Potential negative aspects of a particular health-related action (financial and time costs, side effects, pain, upset, inconvenience.

In summary, given an individual's underlying demographic and socio-pychological make-up, perceived susceptibility and severity combine to generate a certain measure of disease threat that generates the likelihood of health-related action. Perceived benefits of health-related actions to reduce the threat (deminished by the perceived barriers) provide the

preferred pathway to action (Becker et al., 1977). A more recent and extensive review of the available literature by Janz and Becker (1984) concluded that "substantial empirical evidence" supports the dimensions and organizing framework of the HBM as a comprehensive model that explains individual health-related behaviors.

Subsequently Rosenstock, Strecher, & Becker (1988) made a strong argument to include two new elements of the HBM using Bandura's social cognitive theory: 1) emphasis on the several sources of information used in developing an individual's expectations: the informative and motivational role of reinforcement, and the role of observational learning through modeling (imitating) other behaviors; 2) the concept of "self-efficacy" ("efficacy expectation") as distinct from "outcome expectation" as depicted in Figure 4.

Figure 4. Distinction Between Efficacy and Outcome Expectation



Outcome expectation (an individual's perception that a given behavior will lead to a specific outcome) is already incorporated in the existing HBM element of "perceived benefits." Efficacy expectation is defined as the belief that one can successfully accomplish the behavior necessary to achieve the desired outcome. The authors also point out that the concept of "locus of control" is distinct from "self efficacy" in that the former is believed to be a generalized concept about one's overall capability and more related to outcome expectancy. The latter is situation specific or narrowly related to beliefs about one's abilities

in a specific condition or setting. Both are important to health related behaviors, but locus of control is probably incorporated in existing elements of the HBM ("perceived benefits"). Therefore, for health-related behavior to occur, an individual must have an incentive ("motivation") to take action in that they believe themselves threatened by their current behavior. They must also believe that a certain behavioral change will produce a beneficial, valued outcome at an acceptable cost ("barriers"); but they must also believe themselves capable ("self-efficacy") of successfully implementing the contemplated change (Rosenstock, Strecher, & Becker, 1988).

The organizational aspects of health care (barriers in the HBM) include accessibility to health services through the characteristics of a health care delivery system: 1) organizational structure (insurance coverage, provider and hospital groups practice organizations, referral patterns, and use of ancillary services); 2) national health policy as it affects financing and the promotion of certain health practice patterns; and 3) the availability of services in a particular geographic region. Widespread variations in HSU have been studied and well documented in several different geographic metropolitan populations (Welch, Miller, Welch, Fisher, & Wennberg, 1993). Welch et al. (1993) implicated the "broad-based differences in practice style among communities" and their conclusion that "a community's practice style appears to be determined more by physician specialties than by the aggregate numbers." Furthermore, the "variations underscore the lack of a firm basis on which to judge the appropriate rate for most procedures, let alone the rate of aggregate differences per capita health expenditures." Wennberg (1987) suggested "The nation's growing demand for improved quality, efficiency, and equity in its health care system is thus hostage to unresolved theories about correct

practices." Medical practice decisions are currently affected by clinical judgment and professional norms of "best practices," lowest health care plan bid prices, and unrealistic patient expectations regarding the curative capabilities of high-tech medical care. Fisher, Wennberg, Stukel, & Sharp (1994) suggested geographic variations in the use of hospital-related health services are not related to significant differences in disease burden or "appropriate" medical provider decision-making skills; but are related to differences in the availability of hospital beds in an era of health policy that promoted inpatient care. "Physicians in both cities make difficult judgments in caring for sick people, with different levels of available per capita hospital resources (Fisher et al., 1994)."

Feldstein (1993) and Jacobs (1991) support the concept that supply creates demand. An available supply of hospital beds or provider appointments create provider-induced demand for these services for the convenience and productivity of both the provider and the patient. The provider, therefore, is in a unique position as both patient advisor in health matters and an active agent who personally and directly undertakes many of the health-related decisions. The provider has influence over how a patient views their own health status and their individual beliefs about the efficacy with which certain health care services can change that health status. Providers significantly affect the individual-induced demand for HSU depending upon the information imparted (directly or indirectly) to the patient; and the provider creates demand directly when prescribing specific health services in the diagnosis and treatment of a patient's illness. Moreover, the provider may not be able to act completely on a patient's behalf because of differences in locally available services, staff privileges at one facility versus another, or insurance policy requirements and restrictions. An additional factor

affecting both patient and provider health-related actions is incorporated in the concept of "moral hazard." When a patient has purchased medical insurance or is entitled to a comprehensive health benefits package (MHSS beneficiaries), the direct price paid for health care services significantly falls and the quantity demanded increases. The concept of "moral hazard" suggests that individuals demand more "unnecessary" health care services under conditions of comprehensive benefits with reduced costs. Co-payments, deductibles, and restricted access to the health delivery system have been the primary mechanisms to date used by health care organization and policy decisions-makers to curb this trend.

Health promotion concepts and definitions

HP, preventive services, and wellness are complimentary terms that encompass different interventions and services. In 1992, Green defined HP as "any combination of educational, organizational, economic, and environmental supports for behavior and conditions of living conducive to health." In this context, "health" refers to the 1958 World Health Organization definition: "health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." In 1989, O'Donnell defined health promotion as:

> ...the science and art of helping people change their lifestyle to move toward a state of optimal health. Optimal health is defined as a balance of physical, emotional, social, spiritual, and intellectual health. Lifestyle changes can be facilitated through a combination of efforts to enhance awareness, change behavior, and create environments that support good health practices. Of the three, supportive environments will probably have the greatest impact in producing lasting changes.

Disease prevention defined by the Office of Disease Prevention and Health Promotion (The U. S. Preventive Task Force (USPSTF), 1996), U. S. Department of Health and Human Services, encompasses primary, secondary, and tertiary measures. Primary measures are interventions for healthy and asymptomatic individuals which prevent medical care and future illness (immunizations, or changing risky health behaviors and life-styles). Secondary measures use screening tests to detect preclinical health problems that would not otherwise be obvious. Tertiary measures treat and manage patients with prolonged health problems to reduce complications, exacerbations, or functional deterioration. Preventive services (USPSTF, 1996) refer to screening tests, counseling interventions, and chemoprophylaxis. Community health services focus on public health needs and environmental concerns (communicable diseases, pure drinking water, sanitary sewage and waste disposal, water fluoridation, and pollution control). The term "wellness" is sometimes used instead of "health promotion", and can refer to any combination of these concepts.

According to a policy group recently chartered by the Deputy Assistant Secretary of Defense for Clinical Services and Health Affairs (Joint Preventive Policy Group, 1996), military preventive medicine encompasses: 1) the identification, prevention, and control of communicable diseases; 2) diseases due to exposure to occupational and environmental threats; 3) non-battle injury threats; and 4) other threats to the health and readiness of military personnel and military units. The core preventive medicine disciplines include: epidemiology, medical entomology, occupational and environmental health sciences, microbiological and toxicological laboratory sciences.

Sustained optimal health and the absence of illness eliminate the need for medical services. Health promotion is, therefore, a demand management strategy using a number of comprehensive processes to eliminate or reduce patient-initiated or directed health services utilization, including: 1) active medical consumerism; 2) self diagnosis; 3) health risk assessment, awareness, and management; and 4) self care or management for acute and chronic illnesses.

Barriers to implementation

Most clinicians have intuitively embraced the concepts of health promotion and expected benefit of preventive services. However, with economic incentives for specialization and medical services "churning", inadequate reimbursement for HP, and fragmented care, US health care systems including the MHSS are currently focused on disease care, not health care. Widespread variations in medical practices and HSU have been studied in several different geographic metropolitan populations (Welch, Miller, Welch, Fisher, & Wennberg, 1993). Welch et al. (1993), Fisher et al. (1994), and Wennberg (1987) indicate no significant differences in disease burden or appropriate medical provider decision-making skills to explain variations in HSU, but do emphasize the lack of an adequate database upon which to judge the appropriate utilization rate for medical services. The widespread uncertainty about which services to offer has been complicated by recommendations and comparisons of effectiveness from varied government and expert civilian sources. Additionally, most providers are not able to develop, implement, or effectively use HP strategies because they are not expected to achieve these skills during their undergraduate or graduate training programs (Hickey, 1995).

The USPSTF was formed by the U. S. Public Health Service in 1984 to evaluate published research dealing with preventive services and provide clinicians with objective data regarding intervention effectiveness. The USPSTF significantly expanded its critical evaluation of preventive services to produce the 1996 Guide to Clinical Preventive Services which clearly established the effectiveness of clinical preventive services in reducing morbidity and mortality. The USPSTF specifies age- and gender-specific screen tests, counseling interventions, and immunizations for primary prevention and periodic examination; and has established efficacious health risk factor identification and risk management interventions in their Put Prevention into Practice (PPIP) program.

The Department of Health and Human Services (DHHS) published Healthy People 2000: National Health Promotion and Disease Prevention Objectives (HP 2000) in 1991 (U. S. Public Health Service, 1991). Broad goals for the HP 2000 project included: increased longevity; reduced premature death, disability, and health disparity; improved access to preventive services; and the integration of scientific knowledge, professional skill, individual commitment, community support, and political will to enable people to take individual and collective responsibility to achieve their full potential. To reach these goals, HP 2000 identified 300 specific objectives in 3 categories and 21 priority intervention areas, and a 22nd area focused on surveillance and data systems. These significant national initiatives provide explicit, well documented, critically evaluated information regarding the clinical effectiveness, and the practical how to guidelines for implementing HP interventions.

Advances in health status assessment

In 1989, Congress passed the Patient Outcomes Research Act which called for a broad-based, patient-centered outcomes research program. In addition to traditional measures (mortality, disease specifics, and treatments), the Act directed the measurement of functional status, well-being, self-reported health perceptions, and satisfaction (Ware, 1995). Quality assessment is now more focused on how successfully the outcome prolongs life, relieves distress, restores function, or prevents disability. Properly crafted general health indicators provide common, convenient, and valid measures to compare patients, estimate illness "burden", and evaluate intervention outcomes. The basic modules have been extensively studied for reliability and validity, and most surveys include modules evaluating physical function, general mental health (psychological distress and well-being), limitations in social and role function due to illness, and self-reported perceptions of general health and well-being (Ware, 1995). Other frequently measured concepts include body pain, sleep problems, cognitive function, quality of life, self reported changes in health status, and various composite indexes. There is a trend to use short form, telephone, and world wide web computer surveys to improve access, population penetration, and longitudinal monitoring programs (Ware, 1995). Current survey instruments can effectively measure general health status of a population, estimate its illness burden for various physical and mental problems, and monitor outcome changes in its health status with specific interventions. Also, health surveys can evaluate different delivery and financing structures to determine whether reductions in health care costs are achieved without harming health outcomes.

Civilian health promotion interventions

"Self-care" refers to what beneficiaries can learn to do for themselves to use the health services system more efficiently and effectively to recognize, prevent, treat, and manage their own health problems. Typically, there is an initial inertia against redirecting disease care assets to demand management activities despite the intellectual awareness that by reducing the number and types of demands on the system there will be increased capacity for truly necessary health care. "Medical consumerism" through patient education, shared clinical-decision making, and professional expectations of self-care responsibility improves the quality of life and reduces the number of medical services delivered (Wennberg, 1990). When patients are aware of the information and alternatives, patient-provider communication is facilitated, diagnosis and treatment duplications are eliminated, medical services with uncertain or marginal benefits are reduced, fewer invasive or less expensive interventions are selected, and needed care is provided sooner which lowers complication rates, decreases intensity, and reduced duration of professional care (Kemper, Lorig, & Mettler, 1993). Since approximately 80% of US health care is actually self-care at home, the demand for professional care would decrease by 25% if self-care increased 5% (Sobel, 1994). The positive and enabling effect of individual and group education on self-help and self-care capabilities has been demonstrated in a number of chronic and disabling illnesses: asthma, congestive heart failure, diabetes, AIDS, cancer, and rheumatic diseases (Kongstvedt, 1996; Lorig & Holman, 1993).

Self-help programs are available and proven effective for general health, common medical problems, acute minor illnesses, and chronic diseases with materials directed at infant

and childhood, adult, and older adult populations (Vickery, 1995). Self diagnosis and self care manuals like Take Care of Yourself (Vickery & Fries, 1995) and Healthwise Handbook (Kemper, 1995) should be integrated with professionally supported triage and health information telephone lines, and interactive computer software programs to allow on-line access to health and system information that can enhance medical consumerism, self-diagnosis, and self-care. Health systems using these integrated programs have demonstrated significant reductions in emergency department visits, acute care visits, and office telephone calls for assistance by reducing the need and demand for medical services with the first year of implementation (Vickery, 1995).

"Health risk assessment" refers to the identification of health conditions, personal behaviors and lifestyles, and preclinical disease indicators that predict the future onset of health problems that will require medical service utilization. Managing these risks through education, counseling, and behavior modification programs will reduce the demand and cost of future medical services more than three times the cost of these programs within 2-5 years (Fries, Koop, Beadle, Cooper, England, & Greaves, 1993). Health care expenditures for smokers are approximately a third higher than for nonsmokers; and risky health habits have been demonstrated to correlate with increased illness burden, health expenditures, and mortality (Fries et al., 1993). The risk management approach provides individuals with sufficient information about risks, benefits, and options to make rational medical decisions. Health seeking behavior is affected by awareness, education, self-reliance, self-efficacy, life-style and family support, time and money costs, morbidity, cultural values, and demographics which affects perceived needs and preferences (Vickery, 1995).

Community-based studies reported by the Center for Research in Disease Prevention, Stanford University School of Medicine, have been developed to integrate community wide health education programs to reduce cardiovascular risk. After five years, the "Five-City Project" reported a 15% reduction in total mortality risk and heart disease risk scores for the educated cities compared to the control cities (Farquhar, Fortmann, Flora, Taylor, Haskell, & Williams, 1990). With a twenty year experience, Group Health Cooperative of Puget Sound reported a significant age-adjusted decrease in late-stage breast cancer incidence; an overall increase in full course completion of childhood immunizations for 2 year olds; a significant drop in tobacco use; and a 67% drop in emergency department visits for bicycle-related head injuries associated with increased helmet use (Thompson, Tapin, McAfee, Mandelson, & Smith, 1995).

"Worksite" HP programs have proliferated since the 1980s, becoming more effective and considerably improved in research design, data analysis, and application of intervention standards (Pelletier, 1993; Opatz, 1994). A national survey of 1400-1500 work sites conducted in 1985 indicated that approximately 67% of the subject companies with over 50 employees offered health promotion services. A second survey in 1992 revealed 81% had company HP programs (Stokols, Pelletier, & Fielding, 1995). With an extensive review of the literature many effective worksite HP programs have documented improved health status and reduced costs beyond those required for implementation (Fries et al., 1993; Pelletier, 1993; Opatz, 1994; Kaman, 1995; Stokols et al., 1995). Beyond the health and economic incentives, effective HP programs have improved recruiting and retention of high quality

employees, decreased absenteeism, enhanced productivity, improved company public image, and increased employee loyalty and motivation (Rosen, 1991; Opatz, 1994;).

MHSS health promotion strategies

The erratic evolution of MHSS HP initiatives has been previously reviewed. A systems approach has been advocated to integrate Department of Defense (DoD) human resources, occupational health and safety, life-style, and health benefits elements for a more cost effective approach to operational medical readiness and health status improvement (Collins & Custis, 1993). Survey predictors and factors affecting health seeking behaviors in active duty populations and affecting the need and demand for health services utilization (as previously described for Figure 1) are similar when compared to previously documented civilian population studies (Simmons, 1993; Jonas, 1994; St. Onge, 1995). Despite significant progress in civilian program and health status survey developments; and the absence of a unified central policy for MHSS HP program integration or implementation, a narrow focus on risk factors continues to delay the organized documentation of health-related behaviors or health status outcomes as well as crucial utilization management efficiencies.

The annual Survey of Health Related Behaviors Among Military Personnel (DoD-HRB) has been developed and conducted by Bray, Kroutil, Wheeless, Marsden, Bailey, Fairbank, & Harford (1995) at the Research Triangle Institute, North Carolina as an outgrowth of an alcohol and drug abuse reduction campaign beginning in the 1970s. Despite a few added elements to assess smoking, physical fitness, nutrition, stress, hypertension, women's issues, and relevant HP 2000 objectives, the 1995 survey continues its primary focus

on alcohol, tobacco, and drug use rather than general health status. As a reliable and validated population-based survey, the prevalence for risky health behaviors in the active duty population can be accurately predicted, and population rates can be compared over time, between military services, and with similar aggregate studies performed on civilian populations (i.e., Behavioral Risk Factor Surveillance System (BRFSS) by the Center For Disease Control (CDC)). The Air Force has apparently investigated using the BRFSS to compare its rates of risky behavior to those of the other 50 states in the CDC comparison reports. The DoD Civilian External Peer Review Program (CEPRP) sponsored a different population-based survey (Crawford, 1996) using medical records to assess the degree to which key clinical preventive services were delivered in accordance with PPIP program guidelines and HP 2000 objectives. Unfortunately, the medical record, was located in only 25-40% of cases.

Since 1987, the Army has conducted the Health Risk Appraisal Assessment (HRAA) as a measure of operational medical readiness, a modified version of a survey developed by the Carter Center, Emory University (Jonas, 1994). Over 600,000 individual active duty assessments have been collected and unit reports have been returned as snapshots, but no longitudinal or aggregate evaluations have been performed to date. The HRAA focuses on physical fitness and health risk assessment using a few metrics (vital signs, blood cholesterol and lipid levels, etc.). In addition to it's sporadic use of the HRAA, the Navy has also developed the Health Promotion Tracking Form (HPTF) (Woodruff, 1994) that is similar to the HRAA in approach, information obtained, and associated weaknesses. It is problematic to use these instruments to reliably monitor or improve individual health status because of the

strong career incentives for fitness and cessation of tobacco, alcohol, and drug use, and because the HRAA and HPTF identify individuals by name and social security numbers without the confidentiality of a medical record. Striping names and social security numbers for aggregate reports will negate longitudinal reports and add little to current DoD population studies. Army and Navy research and health promotion divisions are all separately studying the possibilities but remain more focused on population risk assessments than on individuals-based HP strategies.

The Air Force Office for Prevention and Health Services Assessment (OPHSA) has developed the Health Enrollment/Evaluation Assessment Review (HEAR) in collaboration with the Battelle Corporation, Centers for Public Health Research and Evaluation, Arlington, Virginia, as a more comprehensive health status assessment tool that could identify individual health risks and predict medical service utilization based on chronic disease history for an enrolled population. The HEAR has been validated, field tested, and implemented in TRICARE Region 6 by Battelle and OPHSA, and has been administered to over 26,000 TRICARE prime enrollees. It has been used to identify chronic illness burden and needs for HP programs (risk counseling, clinical preventive services, and self care), and to promote more efficient resource allocation for local and regional health care managers. Data easily provides aggregate and individual-based reports that can be focused at the regional, treatment facility, specialty clinic, or beneficiary levels. An updated HEAR II will address deficiencies in monitoring PPIP guidelines, mental health, women's issues (including reproductive health), safety, nutrition, and oral health. Region 6 implementation of the HEAR II is expected during Summer 1996 with increasing interest by the other services.

Purpose (Variables/Working Hypothesis)

The purpose of this study is to collect reliable and valid data to describe the current level of incumbent MTF top management support, understanding, and performance-outcome expectancy for more comprehensive HP programs. The independent and dependent variables are identified and operationally defined in Appendix A. The independent demographic variables (D1-5) include specific military service (Army or Navy), medical department corps category (Medical Corps = MC, Medical Service Corps = MSC, and Nurse Corps = NC), MTF position (commanding officer and key deputy commanders or directors identified below in Methods and Procedures), MTF category (medical center, community level hospital, or clinic), and MTFs located in the continental U. S. (CONUS) or outside (OCONUS).

The dependent variables include the mean scores for each of the closed-question survey items (Q1-30) and mean scores of the rating scales (proposed = A, B, C; used in analysis = F1-9, FM3, FM6) to test the hypotheses below. The "Q" variables are numerically associated with the survey items numbered sequentially from the top to the bottom of the survey front page and the top to the end of the closed-question items on the survey back page (total of 30 items). The proposed survey item composition of the subscales is identified in Appendix A. Three rating scales are intended to address HP program: cost effectiveness (A), importance as a utilization management strategy (B), and medical department responsibility (C). The final analysis will use the subscales (F1-9) identified when the survey responses are submitted to a principal component factor analysis, and FM3 and FM6 using variable transformations.

Open-question survey items will be subjected to content analysis. Key phrases or issues will be identified to consolidate responses into specific groupings, and written response variables (WR) will be coded as "absent" (not mentioned) or "present" (mentioned). The null and alternate hypotheses are detailed below:

Hypothesis One

- H_o1: The mean rating scale scores (A) support agreement by survey respondents that HP programs are cost effective.

$$H_o1: A = \text{Agreement}$$

- H_a1: The mean rating scale scores (A) do not support agreement by survey respondents that HP programs are cost effective.

$$H_a1: A \neq \text{Agreement}$$

Hypothesis Two

- H_o2: The mean rating scale scores (B) support agreement by survey respondents that HP programs are important utilization management strategies.

$$H_o2: B = \text{Agreement}$$

- H_a2: The mean rating scale scores (B) do not support agreement by survey respondents that HP programs are important utilization management strategies.

$$H_a2: B \neq \text{Agreement}$$

Hypothesis Three

- H_o3: The mean rating scale scores (C) support agreement by survey respondents that HP programs are the responsibility of the military medical department.

$$H_o3: C = \text{Agreement}$$

- H_a3: The mean rating scale scores (C) do not support agreement by survey respondents that HP programs are the responsibility of the military medical department.

$$H_a3: C \neq \text{Agreement}$$

Hypothesis Four

- H_o4: There are no differences among the overall mean rating scale scores (M) for the surveyed military services, medical department corps, MTF positions, MTF category, or geographic location (CONUS Vs. OCONUS).

$$H_o4: M(\text{Service}) = M(\text{Corps}) = M(\text{MTF Position}) = M(\text{MTF Type}) = M(\text{CONUS Vs. OCONUS})$$

- H_a4: There are differences among the overall mean rating scale scores (M) for the surveyed military services, medical department corps, MTF positions, MTF category, or geographic location (CONUS Vs. OCONUS).

$$H_a4: M(\text{Service}) \neq M(\text{Corps}) \neq M(\text{MTF Position}) \neq M(\text{MTF Type}) \neq M(\text{CONUS Vs. OCONUS})$$

METHOD AND PROCEDURES

Subjects and Data Sampling

Top management currently assigned to U. S. Army and Navy MTFs were surveyed to assess their level of support, understanding, and performance-outcome expectancy for more comprehensive HP programs. Efforts to secure U. S. Air Force support to include Air Force MTFs in this study were unsuccessful. Officers in the following MTF positions were included in the study: Army MTF commanding officers (CO), deputy commanders for clinical services (DCCS), deputy commanders for administration (DCA), and the chief nurse executives (CNE); and Navy MTF commanding officers (CO), executive officers (XO), directors for administration (DFA), and directors for nursing (DNS) at all Army and Navy clinic commands, community level hospitals, and medical centers. Cover letters endorsed by the U. S. Army Medical Command accompanied each Army survey, and a similar letter endorsed by the U. S. Navy Bureau of Medicine and Surgery accompanied each Navy survey with self-addressed envelopes to improve the likelihood of a timely return (Copies in Appendix B).

It is assumed that these four top management positions are the most powerful and influential in the process of determining vision, goals, program development, and the allocation of scarce resources at each MTF. Regardless of whether subordinate clinicians including the HP director at each MTF wanted to develop HP programs, implementation would hinge upon top management interest and support. The assessment is intended to

describe the current aggregate attitudes and opinions of the top management survey respondents. No attempt was made to study or predict the attitudes and opinions of the non-respondents.

Forty-seven U. S. Army MTFs were identified including 7 medical centers, 25 medical detachment activities, 11 clinics, and 4 OCONUS facilities. Forty U. S. Navy MTFs were identified including 4 medical centers, 17 community level naval hospitals, 8 clinics, and 11 OCONUS facilities. It was not possible to identify an accurate list of the names of the specific officers in each position at each MTF identified. Therefore, surveys with attached cover letters, were sent to the incumbent commanding officer of each MTF with the request that the appropriate other three officers receive their survey instrument. No attempt was made to determine the length of time a respondent has held a particular MTF position. No distinction was made between stable, growing, downsizing, or closing facilities. This study is intended to describe the current attitudes and opinions of senior leaders that have been selected and might be selected again to hold MTF top management positions.

Survey Instrument

A sample of the mailed pieces and the final survey instrument is found in Appendix B. Because an appropriate data collection instrument with established reliability and validity was not readily available for this purpose, a survey instrument was developed for this study. A mailed survey was chosen because of its advantages (Fowler, 1993; Cooper & Emory, 1995; Mangione, 1995): relatively low cost and accomplished with minimal personnel or facilities; provides access to a sample that is widely distributed geographically; research sample has a

moderate to high investment in the topic; research sample can be given more time to think about their answers; and they can be given more privacy when responding.

Instrument and question design generally followed the guidelines outlined in Fowler (1993), Cooper & Emory (1995), and Mangione (1995). Acceptable survey content and validity was established by a panel of HP experts representing the major health promotion and disease prevention divisions of the Army and Navy including: U. S. Army Medical Command, U. S. Army Center for Health Promotion and Preventive Medicine, U.S. Navy Bureau of Medicine and Surgery, U. S. Navy Environmental Health Center; and an experienced applied social research scientist with survey instrument design and data collection expertise: Dr. A. David Mangelsdorff, teaching and research staff, U. S. Army Medical Department Center & School. Although a pilot study would improve the instrument, a pretest was not undertaken due to time constraints and the descriptive nature of the study intended as the basis from which to develop timely HP educational and marketing strategies.

The final survey instrument was confined to a single page, front and back (See Appendix B). Thirty closed-questions, four open-questions, and four demographic items (service, corps, MTF position, MTF type). Closed-question items were developed along three constructs as subscales to address hypotheses 1-3 using a seven point Likert Scale (1 = strongly disagree through 7 = strongly agree with a central point of 4 = neutral). A middle ground (4 = neutral) was included and labeled "neutral" to allow the opportunity to express lack of knowledge when appropriate. The use of an expanded scale hopefully presents the opportunity for respondents who are uncomfortable with sending definite opinions back to headquarters to express a degree of agreement or disagreement (3 = somewhat disagree; 5 =

somewhat agree) rather than use the "neutral" position. Open-questions were also included to identify perceptions of existing implementation barriers and acceptable or preferred future measures of HP program success to support continued development and implementation.

Data Collection

Army surveys were mailed on October 7, 1996. Four surveys were sent to the commanding officer of each of the 47 Army MTFs (7 medical centers, 25 medical detachment activities, 11 clinics, and 4 OCONUS facilities) for a total of 188 mailed surveys. Navy surveys were mailed on October 21, 1996. Four surveys were sent to the commanding officer of each of the 40 Navy MTFs (4 medical centers, 17 community naval hospitals, 8 clinics, and 11 OCONUS facilities) for a total of 160 mailed surveys. Only responses received during the six week period following the initial mailing were used in this study (2 Army and 5 Navy surveys were returned well after the 6 week period, and not included). Concern for response bias prevented: 1) in-depth explanations of the study purposes or intent in the attached cover letters, 2) repeated mailings, or 3) additional telephone or e-mail contacts to encourage survey response. Table 3 indicates the overall response rates (see Appendix C for details).

Table 4. Mailed Survey Response Rates at Six Weeks

	Mailed	Returned	Response Rate
Army	**188**	**115**	**61%**
Navy	**160**	**95**	**59%**
Total	**348**	**210**	**60%**

Each returned survey was given a unique identification number and the data was entered into a computer software database, SPSS 6.1 for Windows®, for statistical analysis using the variable names, labels, and numeric coding described in Appendix A. Missing responses on individual surveys will be coded as "missing" for demographic items, "neutral" for closed-questions, and "absent" for open-questions.

Data Transformation

The three subscales (A, B, C) designed to address their respective hypotheses were comprised of questions designed to focus on a particular construct. To vary question format and assess response consistency survey items 9 and 26 were presented from the opposite vantage point. If one were to agree with other questions in the subscale, one would expect disagreement for these two question. Therefore, variables T09 and T26 were created by transposing the survey responses recorded in variables Q09 and Q26 respectively; see Table 4. Variables T09 and T26 were used in further statistical analysis and data discussions described in the following sections.

Table 5. Data Collection and Coding Transposition

Survey Items	Survey Response	Variable Q 9 & Q26	Variable T 9 & T26
9 & 26	1	1	7
	2	2	6
	3	3	5
	4	4	4
	5	5	3
	6	6	2
	7	7	1

Validity and Reliability

Cooper & Emory (1995) identify validity, reliability, and practicality as the three major criteria of "sound measurements." Validity addresses the degree to which the instrument actually measures what is expected to be measured. Reliability refers to the accuracy of the measurement; and practicality depends upon several factors including economy, convenience, and interpretability. Error sources can be traced to the respondent, the situation, the measurer, and the survey instrument. Respondents may differ in their opinions because of various social and cultural differences and past personal or employment experiences. Reluctance to express strong negative feelings or admit ignorance may also lead to biased survey responses. Situational error may be introduced with a variety of distracters including: local MTF crises that take precedence over survey response, insecure feelings of anonymity, and lost or delayed mail. The measurer may introduce error through data entry and processing errors, or tabulation and statistical calculation errors. The instrument itself may also be a source of errors with confusing or ambiguous terms and references. Or, the sample of survey items used to address key constructs of health promotion, demand management, or utilization management may have elicited responses that do not accurately reflect the research sample attitudes and opinions.

A mailed survey was chosen as the measuring instrument and designed to reduce insecurity about anonymity, as well as to provide more time for the respondent to juggle local MTF priorities and consider answers more carefully. The six week collection period was intended to cover mail delivery problems as well as practicality issues of timely analysis and reporting. Measurer error was reduced by using a computerized database and statistical

analysis program. Only one person who had a very high degree of investment in the project was involved in the collection, entry, and processing of data with careful repeated review and editing where appropriate for data and process accuracy.

Content validity, addressed through a panel of experts, and the decision to bypass the opportunity for a pretest are described in the Survey Instrument section above. There are no other studies in the literature of this instrument or its specific survey items to document construct validity beyond the experience and the expertise of the panel members. As a purely descriptive study that is intended to be used to develop HP implementation strategies, no attempt will be made to predict the attitudes or opinions of non-respondents or other MTF personnel based upon the survey responses. For this reason, criterion-related validity was not addressed. Reliability will be estimated using Cronbach's alpha, as a measure of internal consistency. A principal component factor analysis will be used to estimate the validity of the proposed subscales A, B, and C. Significant groupings will be identified as factors (F) with an Eigenvalue greater than 1.0 and individual components associated with the factor will be decided based upon a Varimax Rotation coefficient greater than 0.5. A Pearson Correlation coefficient will be calculated comparing dependent variables against each other. The factor and correlation analyses, described in more detail below, are intended to provide additional post-hoc validity and reliability estimates.

Ethical Issues

The cover letter attached to each survey provided an overview of the study's intent, proposed data use and reporting format, and a commitment to return a summary of results to the research sample participants. Explanations were purposely brief to prevent response bias. The design of the instrument and study was intended to convey and protect anonymity to decrease respondent hesitancy or error. Information from survey responses and the exterior return posted envelope were used to categorize demographic variables. The demographic information and the item responses are compiled and analyzed in aggregate only. Aggregate responses from each of the demographic categories will be used to identify general differences without attribution to a particular MTF or MTF incumbent to assist in coordinating strategies and recommendations.

Statistical Analysis Used in the Study

Returned surveys are assumed to be multiple independent samples of the research population. In analyzing the closed-questions, it is assumed that equal intervals exist between points on the rating scale making analysis of variance and the F test appropriate. Descriptive statistics will summarize closed-question survey responses with means and standard deviations. A multivariate analysis of variance (MANOVA) and the one-way analysis of variance (ANOVA) will be used to assess differences by demographic groups. The Tukey-B test will also be applied with each ANOVA as a multiple comparison procedure. A Pearson Correlation coefficient will be used to assess association strengths among and between response variables.

Since the open-questions are represented by nominally scaled variables ("WR21-WR37" recorded after content analysis as "absent" or "present"), a Kruskal-Wallis one way ANOVA will be used to assess differences by demographic groups.

All relationships and differences will be tested for statistical significance at a level where Alpha = 0.05. For the purposes of this study, "agreement" will be declared for mean scores greater than 5.0 on the seven point Likert Scale applied in the survey instrument. "Disagreement" will be declared for mean scores less than 3.0; and "don't know" for mean scores inclusive of and between 3.0 and 5.0 when testing hypotheses 1-3. Group distinctions in closed- and open-question responses will be labeled as one group that agrees with a particular item more than another.

RESULTS

Descriptive Demographic Results

Overall, 210 (60%) of 348 surveys mailed were returned within six weeks. Army and Navy response rates were essentially the same at 61% and 59% respectively. Details are found in Appendix C. The combined respondent group was comprised of more MSC than MC or NC officers. Since no dentists were among the proposed research sample, none responded. Inter-service differences generally reflected differences in detailing patterns by corps types to these positions. The Army had more MC officers responding as they are the only corps assigned to the Army MTF CO and DCCS positions. Army MC respondents were lower than expected, however, because of the lower CO and DCCS response rates; and the response rates were higher than expected from DCAs and CNEs.

In the Navy, all three corps can be assigned to MTF CO and XO positions, but only MSCs are assigned to DFA positions, and nurses to DNS positions. As expected the Navy had more MSC and fewer MC officers responding. Navy CO and DNS response rates were lower than expected, although NC officers were well represented among Navy responses as a combined group given their possible assignment to Navy MTF CO, XO or DNS positions.

Army MEDDAC response rates were higher than expected; and Army MEDCEN and Clinic responses were lower than expected with no way of knowing how the missing values would change the description. Army CONUS response rates were similar to overall response

rates, and OCONUS rates lower. Navy MEDCEN response rates were very low even if all the missing values were added and Oakland was discounted as a MEDCEN. Navy community hospital and clinic responses rates, on the other hand, were much greater than expected; and OCONUS responses were equivalent to CONUS responses at about the overall response rate.

Closed-Question Results with Reliability Estimate and Factor Analysis

The mean total score and its standard deviation for all returned surveys for each closed-question are presented in Appendix D. Open-question results are discussed below in the section titled Open-Question Results and Analysis, and are detailed on page G-1 of Appendix G.

The 30 closed-question survey responses were submitted to a reliability estimate using Cronbach's alpha as a measure of internal consistency. An overall closed-question reliability was calculated to be: alpha = 0.775. Nine factors ("F" variables in Appendix A) were identified when these items were submitted to a principal component factor analysis. The nine subscales were defined by an Eigenvalue greater than 1.0 and a Varimax Rotation greater than 0.5, accounting for 61.5% of the overall variation. Appendix E provides detailed results of the overall reliability coefficient for the 30 closed-question items, a factor analysis with survey items grouped by the Varimax rotation process, and reliability coefficients calculated for each of these factor groupings.

The factors identified and associated with survey variables by Varimax rotation generally fell into the survey construct subscales ("A", "B", and "C") proposed during survey instrument design and development. Factor 1 associates all but one of the "Subscale A"

survey items, "HP programs are cost effective", with an acceptable reliability coefficient for the group (alpha = 0.854).

The analysis divides the "Subscale B" construct, "HP programs are important utilization management strategies", into several factors keying on "utilization management", "demand management", "self-care", and "supply Vs. demand strategies related to UM". Factors 3, 4, 5, 7, and 9 combined have all but three associated Subscale B survey items. A combined reliability coefficient equals 0.627 when the transformed variable T09 is used in place of Q09.

Factors 2 and 6 associate all of the "Subscale C" survey items, "HP responsibility" issue. The reliability coefficient of 0.837 for factor 2 is reduced to 0.566 when factor 6 variables (T26 and Q30) are added. Factor analysis suggests that variables Q06, Q08, Q14, and Q16 could be disregarded in further analysis.

Hypothesis One

Factor analysis classifies the variables Q15, Q17-Q22, and Q25 with Factor 1 which can be associated with the construct, "HP programs are cost effective." The means and standard deviations of Factor 1 and its component variables are listed in Appendix E. As operationally defined, the overall Factor 1 mean allows **acceptance of the null hypothesis** that survey respondents agree "HP programs are cost effective."

Hypothesis Two

Factor analysis classifies the variables Q07, Q09, Q10, Q01-Q03, Q11-Q13, Q04, Q05, Q23, and Q24 with Factors 3, 4, 5, 7, and 9 which all can be associated further with the

construct, "HP programs are important utilization management strategies." The means and standard deviations of the factors, component variables, and the combination of the factors (FCB) are listed in Appendix E. As operationally defined, the overall combination mean for "FCB" allows **acceptance of the null hypothesis** that survey respondents agree that "HP programs are important utilization management strategies."

Hypothesis Three

Factor analysis classifies the variables Q27-Q29, Q26, and Q30 with Factors 2 and 6 which can be associated with the construct, "HP programs are the responsibility of the medical department." The means and standard deviations of the factors, component variables, and the combination of factors (FCC) are listed in Appendix E. As operationally defined, the overall combination mean for "FCC" allows **acceptance of the alternate hypothesis** that survey respondents did not agree that "HP programs are the responsibility of the military medical department."

Hypothesis Four

A MANOVA was used to test for closed-question ("Q" variables) differences among the various subpopulations of independent ("D") variables. No statistical differences where found at the multivariate analysis level. A one way ANOVA was then calculated for all the "Q and F" variables against separately tested independent ("D") variables applying the Tukey-B test in each case except when variable "D01" was used because only two subpopulations were present (Army or Navy). Differences are discussed below and Appendix F, pages F1-4, details the significant findings.

In summary: 1) A few Army-Navy differences were identified; 2) MTF position differences reflected Corps differences; and 3) Essentially no significant differences were found between MTF types or CONUS Vs. OCONUS locations. The one item that mathematically tested significant for OCONUS facilities was the variable "Q20" ("Using case managers to effect efficient provider behaviors is cost effective"). OCONUS numbers were small, and OCONUS facilities do not have the same opportunity to use case managers locally in the same way as CONUS facilities. It is not surprising, therefore, that CONUS facilities agreed with the survey item more so than OCONUS facilities.

Army-Navy differences (see Appendix F, page F-2) were found for variables Q19, Q07, Q10, Q30, F03, and F06. Navy agreed more with the concepts: "Using non-physician providers to increase self-care skills is cost effective (Q19); HP is UM (F03); Improved health status decreases health services utilization (Q07); and Reducing risky health behaviors decreases medical care demand (Q10)." Army agreed more with the concepts: "HP is a medical department responsibility (F06); and The medical department should prioritize, coordinate, and ensure efficacy for all HP programs (Q30)."

Corps differences were essentially reflected in MTF position differences as expected and will be itemized in the text together (see Appendix F, pages F3 & F4). NC officers and CNE/DNS positions reported a higher degree of agreement with 6 of 8 of the "Subscale A" items, "HP is cost effective" (variable "F01"). NC and MC officers, and CO and CNE/DNS positions agreed more with the concept, "Self-care reduces demand" (variable "F02"). NC officers, and CNE/DNS and XO/DCCS positions were more unsure about the role of the line, personnel, family advocacy, or occupational health and safety in HP responsibility. MC

officers and CO positions reported a higher level of agreement (F06), and MSC officers the lowest level of agreement (Q26), that "HP is a medical department responsibility."

Open-Question Results and Analysis

Using content analysis for open-question responses, nine "barrier" categories (variables "WR21-WR29") and seven future "success" factors (variables "WR31- WR37") were identified. Details regarding the percent of responses that mentioned a particular idea, frequency of the number of responses, and population differences are found in Appendix G, pages G1-3. Comments under "minimum return on the investment" (Survey open-question "1", Appendix B, page B-3) focused on and were consolidated into "success" factors, and items under "other comments" (Survey open-question "4") focused on and were consolidated into either existing "barriers" that limited HP program implementation or proposed future HP program "success" factors. Category labels were chosen to reflect predominant themes. Table 5 lists the categories and their most common associated issues and ideas.

Ninety percent of returned surveys mentioned "understanding" (WR25), "culture" (WR24), "cost" (WR21), "system" (WR23), "time to benefit" (WR22), and "responsibility" (WR29) as the important barriers to HP program implementation. Army and Navy responses prioritized these same categories differently. Both Army and Navy returned surveys identified "healthier lifestyles" (WR35), "decreased utilization" (WR34), "positive outcomes" (WR31), and "cost effectiveness" (WR33) as the most important success factors. Less than 20% of returned surveys gave no responses to the open-questions, and most gave one or two responses for barriers and 1-3 responses for success factors.

Table 6. Open-Question Labels and Ideas Represented

Implementation Barriers

- WR21 - **Cost**: not enough resources (money or personnel); budget constraints, HP competes for scarce resources; not enough resources to take care of all beneficiaries.
- WR22 - **Time to benefit**: benefits too distant from intervention; lack of concern for later disease or illness problems.
- WR23 - **System**: problems with the current health care system; disease care focus; workload focus; military tradition that ALL medical problems must be seen by "DOC."
- WR24 - **Culture**: problems with current social-cultural attitudes and perceptions; resistance to change; behavior patterns very difficult to change; no patient responsibility; lack of incentives.
- WR25 - **Understanding**: lack of awareness and education both on the part of the health care providers and the beneficiaries; tendency to separate HP from primary care.
- WR26 - **Perceptions**: HP is a passing fade; tend to implement HP programs just to have them.
- WR27 - **Rapid Change**: currently in crisis management mode with no time for long-term strategic thinking; difficult to start new programs during downsizing.
- WR28 - **Longevity**: HP programs increase longevity causing more health care costs in the long run.
- WR29 - **Responsibility**: line and medical department commanders not held responsible for health status, injury rates, or unhealthy behaviors; no one has taken the lead in HP.

Success Factors

- WR31 - **Positive Outcome**: measurable outcome improvements (behaviors, risk factors, morbidity, improved PRT scores, etc.).
- WR32 - **PPIP**: Put Prevention into Practice and Healthy People 2000 guidelines met.
- WR33 - **Cost Effectiveness**: demonstrates neutral or positive benefit/cost ration; reduced health care costs per beneficiary.
- WR34 - **Decreased Utilization**: reduced health services utilization (admissions, clinic and ER visits, prescriptions, etc.).
- WR35 - **Healthier Lifestyles**: improved health status; reduced prevalence of modifiable risk factors and preventable disease; reduced demand; decreased time away from work and improved job productivity; increased HP program participation; reduced recidivism.
- WR36 - **System Values Health**: Health care focus rather than disease care focus; HP programs integrated into primary care; health is a valued goal for patients and system.
- WR37 - **Assigned Responsibility**: line and medical department commanders are held responsible for health and fitness of assigned populations; mandatory AD participation in HP; readiness tied to HP.

Significant group differences are detailed in Appendix G, page G-3. Army mentioned "cost" (WR21) as a barrier more frequently; and Navy mentioned the "system" (WR23), "understanding" (WR25), and "responsibility" (WR29) as barriers, and "assigned responsibility" (WR37) as a success factor more frequently. MC and NC officers mentioned "cost" (WR21) as a barrier and "healthier lifestyles" (WR35) as a success factor more frequently. Medical centers and clinics mentioned "responsibility" (WR29) as a significant barrier more frequently; and OCONUS facilities mentioned "culture" (WR24) and "responsibility" (WR29) as barriers and "assigned responsibility" (WR37) as a success factor more frequently. Two barrier categories were mentioned in Army but not Navy returned surveys. "Rapid change" (WR27) was mentioned in only three Army surveys (two from medical centers, and one from a MEDDAC); and "longevity" (WR28) was mentioned in only two Army surveys (both of which were missing other demographic data).

Correlation Among and Between Variables

A Pearson Correlation Coefficient table with two-tailed significance testing was generated for all variables to assess the strength of attitudes and opinions expressed in the open-questions with those represented in the closed-questions. This correlation analysis also served as a further estimate for the degree of construct validity and internal consistency reliability. The tabulated details of statistically significant correlations for all variables can be found in Appendix H, pages H1-4. The number of significant correlations was totaled for each variable as a "count." The "count" values are represented in column graph format, sorted for descending count values and represented in Appendix I, pages I1-3.

All variables had at least one significant correlation with count values ranging from 1 to 34 correlations out of 59 possible variables. Closed-questions (count values ranging from 4 to 34) demonstrated the largest number of significant correlations among items in subscales A and B; and the lowest number among factor 2 (F2) items (part of Subscale C) that addressed line, personnel, family advocacy, and occupational health and safety responsibility for HP programs (Q27-Q29). The other element of Subscale C ("medical department responsibility for HP programs", Q26/T26; and "medical department should prioritize, coordinate, and ensure the efficacy for all HP programs", Q30) scored much higher. "Q30" scored the third highest count value, and "Q26/T26" placed together in the lower middle of the "Q" and "T" range.

Count values for F1-F9, FM3, and FM6 generally reflected the degree of correlation found in their associated "Q & T" variables. When F6 was transformed to FM6, its count value jumped from lowest to highest among factor variables. "F1", "F5", and "FM3" accounted for the next highest count values. Where as the Varimax rotation process of factor analysis did not demonstrate a substantial association for "F8" and its subcomponents (variables Q8, Q14, & Q16) or "Q6" with any particular factor, correlation "count" values placed these factors and items in the upper-middle range of significant associations. This analysis also places F8 in strong association with factors 1, 3, 5, & 7 incorporated by subscales A & B. Factor 2 (F2) fell at the lower end of the scale in concert with its associated variables (Q27-Q29).

For open-questions, the top three "barrier" and top three "success" factor categories mentioned in the returned surveys matched the top six count values; and categories mentioned

infrequently demonstrated the fewest number of significant correlations. The high count values were connected to a widespread distribution of correlations among factors (F1, FM3, F4, F5, and FM6), and associated "Q" variables. Of the frequently mentioned "barriers", a strong correlation was demonstrated between "culture" and "understanding"; and among "success" factors, between "healthy lifestyles" and several health lifestyle indicators ("positive outcomes", "decreased utilization", "system values health", "cost effectiveness"). The concern for the lack of "additional" HP programs resources ("cost barrier") is most closely associate with "success" factors that measure "healthier lifestyles" through satisfied "PPIP" guidelines and "decreased utilization." "Healthier lifestyles" is most strongly associated with barriers that essentially boil down to problems of understanding ("understanding," "culture," "system," "time to benefit," and "cost").

DISCUSSION

An acceptably reliable and valid survey instrument has been developed to assess the current level of incumbent MTF top management support, understanding, and performance-outcome expectancy for more comprehensive HP programs as a key utilization management strategy. The usefulness of the survey instrument has been demonstrated through reliability and factor analysis, and the analysis of correlation among dependent variables. Survey results show external agreement and support for health promotion as a cost effective utilization management strategy. However, a deeper perplexity and misunderstanding also is expressed regarding: 1) how the MHSS prioritizes workload-based resource allocation, episodic illness intervention, and health status improvement; 2) which military organizational elements have which responsibilities for monitoring and improving health; 3) the breadth of the currently accepted concepts and factors that influence health services utilization; 4) cost effective, efficacious health promotion interventions; and 5) how to integrate these concepts of health services utilization and health promotion into a comprehensive utilization management program given the current budgetary constraints and medical care expectations.

Response and Survey Instrument Evaluation

With an acceptable overall response rate of 60%, 210 surveys were returned for analysis which included 65 variables to describe the survey response content. The Army responses tended to reflect MEDDAC-based medical corps officer views, and the Navy

responses those of medical service corps officers from community naval hospitals and clinic commands. These results reflect the current service specific patterns for detailing certain medical department corps-specific personnel into these top management positions. In an effort to provide more timely data for strategic planning, the usual survey instrument pretesting process was by-passed. Since similar survey instruments for the purpose of this study were not available, sufficient content validity and reliability depended more heavily upon the action and resourcefulness of the involved expert panel.

The final survey instrument was shown to have acceptable reliability and validity when the survey responses where analyzed. The overall reliability estimate for closed-questions by Cronbach's alpha was 0.775. The factor analysis demonstrated that 61.5% of the variation was accounted for in the identified factors; and 8 of 9 identified factors along with 26 of 30 survey items easily fit into the three proposed survey Subscales (A, B, & C). Variable correlation analysis by Pearson Correlation Coefficient suggested that the remaining factor and survey items were in fact associated with other variables in Subscales A & B. These analyses suggest refinements are indicated in survey item wording and phrasing to reduce misunderstandings and improve instrument reliability and construct cohesion. A repeat survey with refinements should be planned as a follow-up assessment upon completion of HP implementation marketing and educational strategies resulting from this analysis.

Ambiguous Support for Health Promotion

The survey responses (as an aggregate and by individual service, corps category, or MTF position) clearly indicate that top management currently assigned to US Army and Navy

MTFs are willing to overtly agree that "HP programs are cost effective," and "HP programs are an important utilization management strategy." Looking more carefully at individual items within the subscales, important distinctions can be drawn. Respondents do not agree or are unsure that the many mutable factors causing individual medical care need and demand can be changed or healthy lifestyles established to effectively reduce overall health services utilization per beneficiary. Respondents are also unsure of the relationship between the health services supply and demand factors and the strategies that could be employed to constructively affect them. The lack of patient self-responsibility and patient incentives to participate or comply are widely identified in the barriers section. Respondents seem to expect incentives external to the medical department, and the patient, to fix the perceived problems rather than envisioning an active information or knowledge program developed and implemented from within.

Considerable confusion was expressed regarding who should have which HP program responsibility and how this responsibility should be organized or coordinated into a cohesive, comprehensive program among medical and non-medical department components. Clearly, all respondents agree that the medical department has some responsibility. Most even seem to agree that the medical department should have the overall responsibility to "prioritize, coordinate, and ensure efficacy for all HP programs." As identified in the perceived barriers section below, there is, however, no clearly communicated assigned responsibility for any of the involved components. The resulting discordant effort from each prevents the development of a more comprehensive program that could be an effective utilization management strategy.

Some differences were identified by service, corps category, and MTF position; but only in the degree of agreement or emphasis. That the Navy was more comfortable using

non-physician providers to increase self-care skills probably reflects a long standing reliance on its independent duty corpsman program. The Army scored a higher agreement regarding medical department responsibility for HP programs most likely reflecting the prevalent MC views in returned Army surveys and the MSC views in returned Navy surveys. NC officers consistently scored a higher agreement for the cost effectiveness issue of HP; and NC and MC officers scored higher agreements for the importance of self-care skills and patient directed responsibility in acute and chronic diseases. MC officers were the most adamant about medical department responsibility for HP programs; and NC officers were the most unsure about the type and degree of HP program responsibility shared by other involved, non-medical department components. MTF position differences reflected the fact that MC officers are usually detailed to Army CO and DCCS positions, and MSC and NC officers are typically detailed to Army and Navy administrative and chief nurse executive positions. No significant differences were found among MTF types or CONUS Vs. OCONUS location.

Suggested Future Success Measures and Perceived Implementation Barriers

The degree of constructive response to the open-questions section of the survey was particularly enlightening. Just over 80% of all returned surveys contained ideas about suggested future measures of success to promote ongoing HP program development and implementation and perceived barriers that currently limit HP program implementation.

Healthier lifestyles and decreased utilization are the most commonly identified positive outcomes respondents suggested as measures of health promotion success. The current literature supports the idea that a key element of health promotion and demand management is

the longitudinal monitoring of a defined population's health status, health-related behaviors, and health services utilization. To facilitate informed allocation of scarce resources, valid and reliable data must be available to assess changes in health status and the cost effectiveness of the adopted interventions. An extensive literature already documents currently proven methods that would appropriately achieve these measurements.

Identified barriers suggest that the recorded respondent agreement with HP as a cost effective, utilization management tool is ambiguous and ambivalent. The most frequently mentioned barriers included: 1) "understanding" (provider and beneficiary), 2) "culture" (problems with beneficiary perceptions and attitudes), 3) "cost" (lack of additional budget or personnel resources to "add" HP programs to the current inventory of health services offered), 4) "system" (problems within the MHSS such as: traditional military sickcall requirements, prescriptions for non-prescription items, disease care focus, and workload orientation for budgetary justifications), 5) "time to benefit" (patients more worried about the here and now rather than long term consequences; and commanders in the current budget crisis "can't wait" for long term benefits), and 6) "responsibility" issues (none clearly assigned, line and hospital commanders not held responsible for the health of their assigned populations, no one group taking the lead or initiative to coordinate the spectrum of HP/demand management interventions).

By and large, these important barriers can be boiled-down to a problem of understanding from one perspective or another. Military beneficiary understanding will only occur when they are appropriately informed or educated by more knowledgeable, responsible, and coordinated components of the military system as a whole. A general perception persists

that well defined responsibilities have not been identified or assigned for each of the involved military components: the medical department (all clinical services including: social services, mental, and oral health), the "line", personnel, family advocacy, preventive medicine, industrial hygiene, and occupational health and safety. The survey respondents managing the would be informers and educators are generally not comfortable themselves about the factors that explain and predict individual health-related behaviors (HBM) or the concepts of demand management (range of HP interventions). Although these concepts are well described in the available health care literature, senior leadership sends mixed messages regarding successful practice patterns by accepting workload-based reports without assigned responsibility for beneficiary health status. Under the current rules of engagement, MTF management is willing to allocate scarce resources to continue "unnecessary" medical care as a workload-oriented measure of success. Within the current management milieu, however, they do not seem to be willing to allocate some of these scarce resources to reduce the demand for "unnecessary" care which would cut costs per beneficiary and increase access for other "necessary" services. This unwillingness can only stem from a lack of information; or a neglect of the current literature because of mixed messages from their senior leadership. Somehow the military health care system has not successfully signaled that it values health above disease in a way that encourages MTF top management to focus on individual health status and the elements that predict HSU. Considerable behavior outcome research has already shown, whether it is health-related or not, successful behavioral changes (by MTF management or beneficiaries) require three elements: 1) an incentive to take action because current behavior causes a perceived threat; 2) the belief that the specific change will result in a valued outcome above

the barriers (cost); and, 3) a confidence in one's ability to successfully implement the contemplated change (self-efficacy).

Beneficiary and top management motivation must come from a system that: 1) acts unequivocally to demonstrate value for overall health status above an episodic disease or workload-based orientation; 2) clearly communicates health-related responsibilities and demands integration and coordination with other military medical and non-medical departments; 3) appropriately informs and educates leaders regarding health status measurement, HP, and HSU concepts while reinforcing those who successfully implement these ideas to improve operational medical readiness and health status; and 4) consistently expects these notions to be integrated into a pervasive and comprehensive UM philosophy.

RECOMMENDATIONS

The purpose of this study has been to collect reliable and valid data to describe the current level of incumbent MTF top management support, understanding, and performance-outcome expectancy for more comprehensive HP programs. The relevant literature has been reviewed: 1) to discuss the well documented factors predicting individual health-related behaviors; 2) to discuss current advances in the measurement and monitoring of general health status; and 3) to illustrate how several mature civilian health services organizations and numerous HP programs have implemented cost effective, efficacious demand management strategies to reduced the need and demand for health services utilization while improving beneficiary health status. In light of this knowledge, the data-supported description of current attitudes and opinions of Army and Navy MTF top management compiled from survey respondents is intended to be used as a basis for strategic planning by headquarters activities to facilitate the development and implementation of more comprehensive utilization management strategies.

Recommended Strategies

Strategy 1: Demonstrate System Values Health Above Disease

1) **Demonstrate unequivocally** that the **senior leadership values**, and expects its top management to value, **health status improvement** above episodic disease workload as a measure of success for operational medical readiness and health benefit delivery.

- **Deploy a system-wide**, electronic, valid and reliable **general health status assessment and longitudinal database capability** (already described in the literature, and currently under development by the U. S. Air Force OPHSA).
- **Define and monitor the individual health status** of all active duty members as part of the medical record; and then other beneficiaries ASAP.
- **Adopt and monitor specific health status and health services utilization outcome measures** to facilitate executive management decisions regarding interventional cost effectiveness and resource allocation.
- **Adopt a long term commitment to improve individual health status**, and **minimize health status monitoring** as a means for **administrative separation.**
- **Adopt MTF performance standards and criteria for resource allocation** based on population **health status trends** by command and geographic or catchment areas (**including both changes in individual health** and health-related costs per beneficiary incorporating the **cost of individual risky behaviors as well as HSU** for a particular population)

Strategy 2: Clearly Communicate Health-Related Responsibilities

2) **Military components** such as: the medical department (all clinical services including social services, mental, and oral health), the "line", personnel, family advocacy, preventive medicine, industrial hygiene, and occupational health and safety **must be brought together** in a **coordinated health status improvement effort** to reduce discordant and duplicative efforts and **facilitate a cohesive, comprehensive philosophy and approach**.

- **Position the military medical department** to prioritize, coordinate, and ensure efficacy for health status interventions and HSU management strategies.
- **Communicate specific responsibilities and expectations of senior medical department leaders** involved in health care / promotion and HSU management to eliminate significant gaps in a comprehensive HP program.
- **Adopt a "systems approach" and responsibility for health status impact and improvement** that spans more than the current annual fiscal cycle and the individual MTF. Long range planning and future impact responsibility must replace the limited focus on MTF assignment tours as military beneficiaries represent a long term commitment, not a 1-2 year health services contract. MTF decisions made in the short run impact many years and other components of the system, not just the time "on watch").
- **Convince senior military leaders that line commanders** as well as **medical department commanders** must assume **responsibility for the health status** of their assigned populace.

Strategy 3: Ensure Senior Leader Knowledge of Current Concepts

3) **Ensure** that senior leaders and top management are **knowledgeable about current concepts** and documented advances regarding:

- **General heath status assessment** and monitoring using electronic databases for longitudinal medical record keeping.
- **Factors that explain and predict health services utilization and health-related behaviors** including concepts of: 1) the health belief model; 2) system-wide relationships between the elements of supply and demand for health services utilization; and 3) appropriate measures to sustain changed behaviors.
- Cost effective and comprehensive **health promotion programs** based on a population needs assessment including: 1) informed individual medical consumerism; 2) expectation of individual patient involvement and responsibility in clinical decision-making; 3) self-management skills for acute and chronic diseases; 4) modification of risky behaviors and promotion of healthy lifestyles; and 5) the importance of social support factors and mental stress in the development, maintenance, and treatment of illness.

Strategy 4: Integrate Concepts to Pervade Daily Business

4) **Communicate the expectation** that the concepts of promoting health and managing health services utilization is **everyone's daily business;** deployed or getting ready to deploy.

- All parties involved in operational medical readiness and health status improvement must operate under a primary philosophy of **"treat when necessary, and prevent when possible."**
- **Establish a coordinated team approach** to health promotion and utilization management that **creates a pervasive and comprehensive health philosophy** in concert with other military medical and non-medical departments.
- **Prevent the partitioning** of health promotion and utilization management efforts into separate departments or programs **separated from primary care**. These concepts are part of a philosophy that must be integrated into all departments at all times, especially within "primary care" if it is to be what it is meant to be.
- **Oral health, mental health, and social support health** must be **re-integrated** into the overall assessment of health status and utilization management.

Strategy 5: Follow-up Assessments

5) Plan follow-up assessments to monitor progress in perceptions and attitudes, knowledge of current concepts, and the development and implementation of these concepts.

- Refine and repeat a survey with the instrument used in this study; add elements to identify interventions employed and their health status impact.

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APPENDICES

APPENDIX A: List & Description Of Independent And Dependent Variables

Appendix A: List Description of Independent Dependent Variables

Survey Item	SPSS Variables			**Subscale	Numeric Coding							
	Name	Label	Type		0	Survey Value=1	Survey Value=2	Survey Value=3	Survey Value=4	Survey Value=5	Survey Value=6	Survey Value=7
	ID	Unique identification number for each survey	Independent		N/A	(First digit = 1 for Army; 2 for Navy)		(Second 2 digits for specific MTF)		(Last 3 digits survey specific)		
	D01	Branch of military service	Independent		N/A	Army	Navy	N/A	N/A	N/A	N/A	N/A
	D02	Medical department corps	Independent		N/A	Dental Corps	Medical Corps	Med Svc Corps	Nurse Corps	N/A	N/A	N/A
	D03	MTF position*	Independent		N/A	Commander	DCCS or XO	DCA or DFA	Chief Nurse	N/A	N/A	N/A
	D04	MTF category	Independent		N/A	Medical Center	Community Hosp.	Clinic	N/A	N/A	N/A	N/A
	D05	Whether facility is located OCONUS	Independent		No	Yes	N/A	N/A	N/A			
	*	DCCS = Deputy Commander for Clinical Services										
		XO = Executive Officer										
		DCA = Deputy Commander for Administration										
		DFA = Director for Administration										
						Survey Value=1	Survey Value=2	Survey Value=3	Survey Value=4	Survey Value=5	Survey Value=6	Survey Value=7
1	Q01	Genetic predisposition to illness	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
2	Q02	Individual behaviors cause illness	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
3	Q03	Socio-environmental factors & illness	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
4	Q04	Patient perceptions cause demand	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
5	Q05	Provider perceptions & behavior cause demand	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
6	Q06	Improve health with fewer risks	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
7	Q07	Improved health reduces utilization	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
8	Q08	HP competes for resources	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
9	Q09	HP increases utilization	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
10	Q10	Reduced risk reduces demand	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
11	Q11	Most Sx can be self-treated	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
12	Q12	Self-management reduces chronic illness demand	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
13	Q13	Increased self-efficacy reduces demand	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
14	Q14	Awareness increases HSU efficiency	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
15	Q15	Risk management is cost effective	Dependent	A	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
16	Q16	Healthy behavior awareness is cost effective	Dependent	A	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
17	Q17	HP is low cost for healthy lifestyles	Dependent	A	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
18	Q18	HCIL with manuals is cost effective	Dependent	A	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
19	Q19	Non-MD providers for self-care is cost effective	Dependent	A	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
20	Q20	Use of case managers is cost effective	Dependent	A	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
21	Q21	HP is effective UM	Dependent	A	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
22	Q22	Discharge planning incorporates HP	Dependent	A	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
23	Q23	Managed care uses supply strategies	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
24	Q24	Managed care uses demand strategies	Dependent	B	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
25	Q25	HP cost effectiveness established, barriers exist	Dependent	A	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
26	Q26	HP not Medical Dept responsibility	Dependent	C	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
27	Q27	HP is Line responsibility	Dependent	C	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
28	Q28	HP is Family Advocacy responsibility	Dependent	C	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
29	Q29	HP is Occ Health/Safety responsibility	Dependent	C	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
30	Q30	All HP should be supervised/coord. by Medical	Dependent	C	N/A	strongly disagree	disagree	somewhat disagree	neutral	somewhat agree	agree	strongly agree
	**	Subscale A= Health Promotion (HP) programs are cost effective										
		Subscale B = HP programs are important utilization management strategies										
		Subscale C = HP programs are the responsibility of the medical department										

Appendix A: List Description of Independent Dependent Variables

Survey Item	SPSS Variables				Numeric Coding							
	Name	Label	Type	**Subscale	0	Survey Value=1	Survey Value=2	Survey Value=3	Survey Value=4	Survey Value=5	Survey Value=6	Survey Value=7
		Barriers										
	W21	Cost	Dependent		absent	present						
	W22	Time to Benefit	Dependent		absent	present						
	W23	System	Dependent		absent	present						
	W24	Culture	Dependent		absent	present						
	W25	Understanding	Dependent		absent	present						
	W26	Perceptions	Dependent		absent	present						
	W27	Rapid Change	Dependent		absent	present						
	W28	Longevity	Dependent		absent	present						
	W29	Responsibility	Dependent		absent	present						
		Success Factors										
	W31	Positive Outcomes	Dependent		absent	present						
	W32	PPIP	Dependent		absent	present						
	W33	Cost Effectiveness	Dependent		absent	present						
	W34	Decreased Utilization	Dependent		absent	present						
	W35	Healthier Lifestyles	Dependent		absent	present						
	W36	System values health	Dependent		absent	present						
	W37	Assigned responsibility	Dependent		absent	present						
	T09	Reverse value coding of Q09	Dependent		N/A	strongly agree	agree	somewhat agree	neutral	somewhat disagree	disagree	strongly disagree
	T26	Reverse value coding for Q26	Dependent		N/A	strongly agree	agree	somewhat agree	neutral	somewhat disagree	disagree	strongly disagree
	F01	Factor 1: HP is cost effective	Dependent		Operationally defined as the mean of Q15, Q17-Q22, Q25							
	F02	Factor 2: HP responsibility?	Dependent		Operationally defined as the mean of Q27-Q29							
	F03	Factor 3: HP is utilization managment (UM)	Dependent		Operationally defined as the mean of Q07, Q09, Q10							
	FM03	Modified F03; T09 sub for Q09; HP is UM	Dependent		Operationally defined as the mean of Q07, T09, Q10							
	F04	Factor 4: Need and Demand causes	Dependent		Operationally defined as the mean of Q01, Q02, Q03							
	F05	Factor 5: Self-care reduces demand	Dependent		Operationally defined as the mean of Q11, Q12, Q13							
	F06	Factor 6: HP responsibility?	Dependent		Operationally defined as the mean of Q26, Q30							
	FM06	Modified F06; T26 sub for Q26; HP responsibility?	Dependent		Operationally defined as the mean of T26, Q30							
	F07	Factor 7: Need and Demand causes	Dependent		Operationally defined as the mean of Q04, Q05							
	F08	Factor 8: Miscellaneous	Dependent		Operationally defined as the mean of Q08, Q14, Q16							
	F09	Factor 9; Supply Vs demand strategies for UM	Dependent		Operationally defined as the mean of Q23, Q24							

APPENDIX B: Copies Of The Final Survey Instrument And Army And Navy Cover Letters

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MEDICAL COMMAND
2050 WORTH ROAD
FORT SAM HOUSTON, TEXAS 78234-6000

REPLY TO
ATTENTION OF

S: 24 October 1996

MCHO-CL-M (40)

3 OCT 1996

MEMORANDUM FOR COMMANDERS, MEDCOM MEDCENs/MEDDACs

SUBJECT: Development of Utilization Management (UM) Strategies

1. We are trying to develop more comprehensive UM strategies to ensure TRICARE success as the Medical Health Service System transitions to a more structured managed care environment.

2. The purpose of the enclosed survey (Enclosure 1) is to determine the level of top management support and the feasibility for developing more comprehensive health promotion programs in the Army Medical Department.

3. Please complete one survey and distribute surveys to Deputy Commander for Clinical Services, Deputy Commander for Administration, and Chief Nurse Executive. Please return surveys to Captain Richard C. Welton, U.S. Navy, Headquarters, U.S. Army Medical Command, ATTN: MCHO-CL-M, in the enclosed self-addressed envelopes (Enclosure 2).

4. Your responses will be compiled and analyzed in aggregate only. Aggregate Army responses will be compared with aggregate responses of the Navy and Air Force to assist in coordinating joint strategies. A report of responses will be returned to you within 60 days.

5. Our point of contact is Captain Welton, Managed Care Division, Directorate of Clinical Operations, DSN 471-6517 or Commercial (210) 221-6517.

FOR THE COMMANDER:

2 Encls
as

ROBERT F. GRIFFIN
Brigadier General, MC
Deputy Commander for Health
Care Operations

DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY
2300 E STREET NW
WASHINGTON DC 20372-5300

IN REPLY REFER TO
5000
Ser 03A/0054
4 Oct 96

From: Chief, Bureau of Medicine and Surgery

Subj: DEVELOPMENT OF UTILIZATION MANAGEMENT (UM) STRATEGIES

Encl: (1) Surveys
(2) Envelopes

1. We are trying to develop more comprehensive UM strategies to ensure TRICARE success as the Medical Health Service System transitions to a more structured managed care environment.

2. The purpose of the enclosed survey, Enclosure (1), is to determine the level of top management support and the feasibility for developing more comprehensive health promotion programs in the Navy Medical Department.

3. Please complete one survey and distribute surveys to your Executive Officer, Director for Administration, and Director for Nursing. Please return surveys to Captain Richard D. Welton, MC, USN, Headquarters, U.S. Army Medical Command, ATTN: MCHO-CL-M, in the self-addressed envelopes (Enclosure (2)).

4. Your responses will be compiled and analyzed in aggregate only. Aggregate Navy responses will be compared with aggregate responses of the Navy and Air Force to assist in coordinating joint strategies. A report of responses will be returned to you within 60 days.

5. Our point of contact is Captain Welton, Managed Care Division, Direcorate of Clinical Operations, at (210) 221-6517 or DSN prefix 471.

R. A. MAYO
Assistant Chief for
Health Care Operations

Appendix B.
Health Promotion Assessment for Strategic Planning

Please indicate your degree of agreement with each of the statements below by circling one answer: (1=strongly disagree; 2=disagree; 3=somewhat disagree; 4=neutral; 5=somewhat agree; 6=agree; 7=strongly agree).

	SD N SA
1. A clear relationship exists between genetic predisposition and illness.	1 2 3 4 5 6 7
2. A clear relationship exists between individual behaviors and illness.	1 2 3 4 5 6 7
3. A clear relationship exists between socio-environmental factors and illness.	1 2 3 4 5 6 7
4. Patient perceptions generate demand for medical care.	1 2 3 4 5 6 7
5. Provider perceptions and behaviors affect the demand for medical care.	1 2 3 4 5 6 7
6. It is possible to improve health by preventing or removing health risks.	1 2 3 4 5 6 7
7. Improved health status decreases health services utilization.	1 2 3 4 5 6 7
8. Health Promotion (HP) programs compete for scarce medical care resources.	1 2 3 4 5 6 7
9. HP programs increase health services utilization.	1 2 3 4 5 6 7
10. Reducing risky health behaviors decreases medical care demand.	1 2 3 4 5 6 7
11. Most clinical symptoms can be self-treated at home.	1 2 3 4 5 6 7
12. Self-management reduces chronic illness health services utilization.	1 2 3 4 5 6 7
13. Increasing patient self-efficacy (confidence that the individual can manage his/her own symptoms) reduces medical care demand.	1 2 3 4 5 6 7
14. Patient awareness motivates efficiency in health services utilization.	1 2 3 4 5 6 7
15. Programs that assess and manage health risks are cost effective.	1 2 3 4 5 6 7
16. Healthy behavior awareness alone is cost effective.	1 2 3 4 5 6 7
17. HP programs are low cost ways to achieve and maintain healthy lifestyles.	1 2 3 4 5 6 7
18. Programs that use self-care manuals and health care information/advice telephone lines are cost effective.	1 2 3 4 5 6 7
19. Using non-physician providers to increase self-care skills is cost effective.	1 2 3 4 5 6 7
20. Using case managers to effect efficient provider behaviors is cost effective.	1 2 3 4 5 6 7
21. HP programs are effective utilization management tools.	1 2 3 4 5 6 7
22. Effective discharge planning incorporates HP programs.	1 2 3 4 5 6 7
23. Successful managed care organizations use supply-side strategies.	1 2 3 4 5 6 7
24. Successful managed care organizations use demand-side strategies.	1 2 3 4 5 6 7
25. HP benefit above cost is well established but barriers prevent implementation.	1 2 3 4 5 6 7

Appendix B.
Health Promotion Assessment for Strategic Planning

Please indicate your degree of agreement with each of the statements below by circling one answer: (1=strongly disagree; 2=disagree; 3=somewhat disagree; 4=neutral; 5=somewhat agree; 6=agree; 7=strongly agree).

	SD			N			SA
26. HP programs are not a medical department responsibility.	1	2	3	4	5	6	7
27. HP programs are a line/personnel responsibility.	1	2	3	4	5	6	7
28. HP programs are a Family Advocacy responsibility.	1	2	3	4	5	6	7
29. HP programs are an Occupational Health and Safety responsibility.	1	2	3	4	5	6	7
30. The medical department should prioritize, coordinate, and ensure efficacy for all HP programs.	1	2	3	4	5	6	7

Please provide brief written responses

1. What would your consider to be the minimum return on the investment of developing/implementing more comprehensive health promotion programs?

2. What are the important obstacles or barriers to be aware of and overcome?

3. What criteria or measures of success should be used for health promotion programs?

4. Please provide any other comments or suggestions.

Please circle all that apply:

1. Branch of Service:		Army	Navy	Air Force
2. Corps:	DC	MC	MSC / AMSC	NC
3. Flag Officer		Commanding Officer		Executive Officer
Deputy Commander for		Clinical Services		Administration (Chief of Staff)
Director for		Nursing (Chief Nurse Executive)		Administration
4. Tertiary Care MEDCEN		Community MTF / MEDDAC		Clinic Command

APPENDIX C: Detailed Survey Response Rates

Appendix C: Detailed Survey Response Rates

	All Surveys			Returned Army Surveys			Returned Navy Surveys		
	No.	Group%	Resp.	No.	Group%	Resp.	No.	Group%	Resp.
Army	115	55%	61%						
Navy	95	45%	59%						
Total	210	100%							
Medical Corps	69	32.9%		46	40.0%		23	24.2%	
Medical Service Corps	76	36.2%		34	29.6%		42	44.2%	
Nurse Corps	59	28.1%		32	27.8%		27	28.4%	
Missing descriptions	6	2.9%		3	2.6%		3	3.2%	
Total	210	100.0%		115	100.0%		95	100.0%	
COs	45	21.4%	51.7%	23	20.0%	48.9%	22	23.2%	55.0%
XO/DCCSs	51	24.3%	58.6%	25	21.7%	53.2%	26	27.4%	65.0%
DFA/DCAs	60	28.6%	69.0%	34	29.6%	72.3%	26	27.4%	65.0%
Chief Nurse Exec.	49	23.3%	56.3%	31	27.0%	66.0%	18	18.9%	45.0%
Missing descriptions	5	2.4%		2	1.7%		3	3.2%	
	210	100.0%		115	100.0%		95	100.0%	
MEDCENs	19	9.0%	43.2%	15	13.0%	53.6%	4	4.2%	25.0%
MEDDAC/HOSP.s	127	60.5%	75.6%	66	57.4%	66.0%	61	64.2%	89.7%
CLINICs	50	23.8%	65.8%	23	20.0%	52.3%	27	28.4%	84.4%
Missing descriptions	14	6.7%		11	9.6%		3	3.2%	
	210	100.0%		115	100.0%		95	100.0%	
CONUS	174	82.9%	60.4%	107	93.0%	62.2%	67	70.5%	57.8%
OCONUS	35	16.7%	58.3%	7	6.1%	43.8%	28	29.5%	63.6%
Missing descriptions	1	0.5%		1	0.9%		0	0.0%	
	210	100.0%		115	100.0%		95	100.0%	

APPENDIX D: Survey Results

Variables	Labels	Mean	S. D.
Q01	Genetic predisposition to illness	5.5667	1.09
Q02	Individual behaviors cause illness	6.1286	0.92
Q03	Socio-environmental factors & illness	5.7143	0.96
Q04	Patient perceptions cause demand	6.1476	0.83
Q05	Provider perceptions & behavior cause demand	5.581	1.14
Q06	Improve health with fewer risks	6.1429	1.27
Q07	Improved health reduces utilization	5.6381	1.38
Q08	HP competes for resources	5.6238	1.51
Q09	HP increases utilization	3.7524	1.47
T09	Reverse value coding of Q09	4.248	1.47
Q10	Reduced risk reduces demand	5.4143	1.30
Q11	Most Sx can be self-treated	4.8952	1.22
Q12	Self-management reduces chronic illness demand	5.0191	1.31
Q13	Increased self-efficacy reduces demand	5.7333	0.99
Q14	Awareness increases HSU efficiency	5.3476	1.18
Q15	Risk management is cost effective	5.3095	1.18
Q16	Healthy behavior awareness is cost effective	4.4714	1.35
Q17	HP is low cost for healthy lifestyles	4.8714	1.28
Q18	HCIL with manuals is cost effective	5.2286	1.18
Q19	Non-MD providers for self-care is cost effective	6.0000	0.90
Q20	Use of case managers is cost effective	5.6905	1.16
Q21	HP is effective UM	5.2191	1.20
Q22	Discharge planning incorporates HP	5.9238	0.83
Q23	Managed care uses supply strategies	4.6095	1.34
Q24	Managed care uses demand strategies	4.6952	1.37
Q25	HP effectiveness established, barriers exist	4.7286	5.00
Q26	HP not Medical Dept responsibility	2.3524	1.59
T26	Reverse value coding for Q26	5.6480	1.59
Q27	HP is Line responsibility	4.4524	1.87
Q28	HP is Family Advocacy responsibility	3.5619	2.00
Q29	HP is Occ Health/Safety responsibility	4.3952	1.81
Q30	All HP should be supervised/coord. by Medical	5.5238	1.43

APPENDIX E: Reliability And Factor Analysis

Variables	Labels	Eigenvalue	Varimax Rot.	Factor Alpha	Factor Mean	Question Mean
Q1-Q30	Overall Reliability			0.7754		
F01	Factor 1: HP is cost effective	5.84485		0.8539	5.3714	
Q15	Risk management is cost effective		0.72498			5.3095
Q17	HP is low cost for healthy lifestyles		0.61749			4.8714
Q18	HCIL with manuals is cost effective		0.68997			5.2286
Q19	Non-MD providers for self-care is cost effective		0.61104			6.0000
Q20	Use of case managers is cost effective		0.68834			5.6905
Q21	HP is effective UM		0.80187			5.2191
Q22	Discharge planning incorporates HP		0.55916			5.9238
Q25	HP effectiveness established, barriers exist		0.61580			4.7286
F03	Factor 3: HP is utilization managment (UM)	2.14539		-0.0459	4.9349	
Q07	Improved health reduces utilization		0.74885			5.6381
Q09	HP increases utilization		0.66933			3.7524
Q10	Reduced risk reduces demand		0.74121			5.4143
FM03	Modified F03: T09 sub for Q09: HP is UM			0.6822	5.1000	
Q07	Improved health reduces utilization					5.6381
T09	Reverse value coding of Q09					4.248
Q10	Reduced risk reduces demand					5.4143
F04	Factor 4: Need and Demand causes	1.63366		0.6903	5.8032	
Q01	Genetic predisposition to illness		0.77613			5.5667
Q02	Individual behaviors cause illness		0.77700			6.1286
Q03	Socio-environmental factors & illness		0.73019			5.7143
F05	Factor 5: Self-care reduces demand	1.61090		0.6598	5.2159	
Q11	Most Sx can be self-treated		0.70609			4.8952
Q12	Self-management reduces chronic illness demand		0.68425			5.0191
Q13	Increased self-efficacy reduces demand		0.65996			5.7333
F07	Factor 7: Need and Demand causes	1.26431		0.4422	5.8643	
Q04	Patient perceptions cause demand		0.50153			6.1476
Q05	Provider perceptions & behavior cause demand		0.79985			5.581
F09	Factor 9: Supply Vs demand strategies for UM	1.03919		-0.3200	4.6524	
Q23	Managed care uses supply strategies		0.67761			4.6095
Q24	Managed care uses demand strategies		0.72013			4.6952
FCB	Combined FM03, F04, F05, F07, F09				5.34	
	Encorporates Proposed Subscale B					
F02	Factor 2: HP responsibility?	2.44789		0. 8369	4.1365	
Q27	HP is Line responsibility		0.81036			4.4524
Q28	HP is Family Advocacy responsibility		0.88151			3.5619
Q29	HP is Occ Health/Safety responsibility		0.88623			4.3952
F06	Factor 6: HP responsibility?	1.30924		-0.9284	3.9381	
Q26	HP not Medical Dept responsibility		0.69307			2.3524
Q30	All HP should be supervised/coord. by Medical		0.73699			5.5238
FM06	Modified F06: T26 sub for Q26: HP responsibility?			0.4814	5.5857	
T26	Reverse value coding for Q26					5.6480
Q30	All HP should be supervised/coord. by Medical					5.5238
FCC	Combined F02 and FM06				4.72	
	Encorporates Proposed Subscale C					
F08	Factor 8: Miscellaneous	1.14235		0.2639	5.1476	
Q08	HP competes for resources		0.51004			5.6238
Q14	Awareness increases HSU efficiency		0.52548			5.3476
Q16	Healthy behavior awareness is cost effective		0.63640			4.4714
Non-associated item by factor analysis						
Q06	Improve health with fewer risks					6.1429

APPENDIX F: Significant Closed-Question Differences By Independent Variables

Appendix F: Significant Closed-Question Differences by Independent Variables

			D1		D2		D3		D4		D5	
Ques.	Fac.	Mean	anova-Q	anova-F	anova-Q	anova-F	anova-Q	anova-F	anova-Q	anova-F	anova-Q	anova-F
15	1	5.3095	NS	NS	0.0089	0.0000	0.0126	0.0008	NS	NS	NS	NS
17	1	4.8714	NS	NS	NS	0.0000	NS	0.0008	NS	NS	NS	NS
18	1	5.2286	NS	NS	NS	0.0000	NS	0.0008	NS	NS	NS	NS
19	1	6.0000	0.0200	NS	0.0002	0.0000	0.0321	0.0008	NS	NS	NS	NS
20	1	5.6905	NS	NS	0.0015	0.0000	0.0117	0.0008	NS	NS	0.0107	NS
21	1	5.2191	NS	NS	0.0000	0.0000	0.0013	0.0008	NS	NS	NS	NS
22	1	5.9238	NS	NS	0.0004	0.0000	0.0058	0.0008	NS	NS	NS	NS
25	1	4.7286	NS	NS	0.0139	0.0000	0.0460	0.0008	NS	NS	NS	NS
27	2	4.4524	NS	NS	*0.0610*	0.0201	0.0055	0.0029	NS	NS	NS	NS
28	2	3.5619	NS	NS	0.0040	0.0201	0.0013	0.0029	NS	NS	NS	NS
29	2	4.3952	NS	NS	NS	0.0201	NS	0.0029	NS	NS	NS	NS
7	3	5.6381	0.0188	0.0135	NS	NS	NS	NS	NS	NS	NS	NS
9	3	3.7524	NS	0.0135	NS	NS	NS	NS	NS	NS	NS	NS
10	3	5.4143	0.0277	0.0135	NS	NS	NS	NS	NS	NS	NS	NS
1	4	5.5667	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2	4	6.1286	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3	4	5.7143	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11	5	4.8952	NS	NS	0.0129	0.0091	0.0051	0.0003	NS	NS	NS	NS
12	5	5.0191	NS	NS	0.0380	0.0091	0.0161	0.0003	NS	NS	NS	NS
13	5	5.7333	NS	NS	NS	0.0091	0.0089	0.0003	NS	NS	NS	NS
26	6	2.2524	NS	0.0086	*0.0506*	*0.0550*	NS	*0.0741*	NS	NS	NS	NS
30	6	5.5238	0.0161	0.0086	NS	0.0550	NS	NS	NS	NS	NS	NS
4	7	6.1476	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
5	7	5.5810	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
8	8	5.6238	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
14	8	5.3476	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
16	8	4.4714	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
23	9	4.6095	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
24	9	4.6952	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
6		6.1429	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Key:	Mean = mean for individual variable										
		ANOVA = One way ANOVA between a "D" independent and an individual "Q" or "F" dependent variable.										
		NS = not significant										

Appendix F: Significant Closed-Question Differences by Independent Variables

	Statistically Significant Army-Navy Differences				
		Alpha	Mean	Army	Navy
F01	Factor 1: HP is cost effective	0.8539	5.3714		
· Q19	Non-MD providers for self-care is cost effective		6.0000		
	ANOVA Mean			5.8696	**6.1579**
F03	Factor 3: HP is utilization management (UM)	-0.0459	4.9349		
	ANOVA Means for Factor 3			4.9333	**5.3018**
· Q07	Improved health reduces utilization		5.6381		
	ANOVA Mean			5.4348	**5.8842**
· Q10	Reduced risk reduces demand		5.4143		
	ANOVA Mean			5.2348	**5.6316**
F06	Factor 6: HP responsibility?	0.4814	5.5857		
	ANOVA Mean			**5.7870**	5.3421
· Q30	All HP should be supervised/coord. by Medical		5.5238		
	ANOVA Mean			**5.7391**	5.2632

	Statistically Significant Corps Differences by Range Test: Tukey-B Test at 0.05 Sig.					
		Alpha	Mean	MC	MSC	NC
F01	Factor 1: HP is cost effective	0.8539	5.3714			
	ANOVA Means for Factor 1			5.1667	5.2664	**5.7627**
· Q15	Risk management is cost effective		5.3095			
	ANOVA Mean			5.1884	5.1316	**5.7119**
· Q19	Non-MD providers for self-care is cost effective		6.0000			
	ANOVA Mean			5.7681	5.9211	**6.3898**
· Q20	Use of case managers is cost effective		5.6905			
	ANOVA Mean			5.3478	5.6579	**6.0847**
· Q21	HP is effective UM		5.2191			
	ANOVA Mean			4.8406	5.1053	**5.8136**
· Q22	Discharge planning incorporates HP		5.9238			
	ANOVA Mean			5.7971	5.7763	**6.2881**
· Q25	HP effectiveness established, barriers exist		4.7286			
	ANOVA Mean			4.5652	4.5789	**5.1356**
F02	Factor 2: HP responsibility?	.8369	4.1365			
	ANOVA Means for Factor 2			4.1643	3.7763	**4.5763**
· Q27	HP is Line responsibility		4.4524			
	ANOVA Mean			4.4638	4.1447	**4.9153**
· Q28	HP is Family Advocacy responsibility		3.5619			
	ANOVA Mean			3.6670	3.0000	**4.1356**
F05	Factor 5: Self-care reduces demand	0.6598	5.2159			
	ANOVA Means for Factor 5			**5.3382**	4.9605	**5.3840**
· Q11	Most Sx can be self-treated		4.8952			
	ANOVA Mean			**5.1159**	4.5658	**5.0339**
· Q12	Self-management reduces chronic illness demand		5.0191			
	ANOVA Mean			5.1014	4.7237	**5.2881**
F06	Factor 6: HP responsibility?	-0.9284	3.9381			
	ANOVA Mean			**5.8406**	5.3553	5.6525
· Q26	HP not Medical Dept responsibility		2.3524			
	ANOVA Mean			1.9855	**2.6316**	2.3559
				****Bold = statistically different group.**		

	Statistically Significant MTF Position Differences by Range Test: Tukey-B Test at 0.05 Sig.						
		Alpha	Mean	CO	XO/DCCS	Admin	Nursing
F01	Factor 1: HP is cost effective	0.8539	5.3714				
	ANOVA Means for Factor 1			5.3417	5.2647	5.1708	**5.7551**
· Q15	Risk management is cost effective		5.3095				
	ANOVA Mean			5.3111	5.3137	4.9667	**5.7143**
· Q19	Non-MD providers for self-care is cost effective		6.0000				
	ANOVA Mean			5.9556	5.8627	5.8833	**6.3265**
· Q20	Use of case managers is cost effective		5.6905				
	ANOVA Mean			5.5333	5.3922	5.6833	**6.1224**
· Q21	HP is effective UM		5.2191				
	ANOVA Mean			5.1111	5.0196	4.9833	**5.7959**
· Q22	Discharge planning incorporates HP		5.9238				
	ANOVA Mean			5.9556	5.8039	5.7333	**6.2653**
· Q25	HP effectiveness established, barriers exist		4.7286				
	ANOVA Mean			4.5556	4.7451	4.5167	**5.1429**
F02	Factor 2: HP responsibility?	.8369	4.1365				
	ANOVA Means for Factor 2			4.0815	**4.4444**	3.5278	**4.5986**
· Q27	HP is Line responsibility		4.4524				
	ANOVA Mean			4.5556	**4.7843**	3.7667	**4.8980**
· Q28	HP is Family Advocacy responsibility		3.5619				
	ANOVA Mean			3.2667	**3.9216**	2.8667	**4.2449**
F05	Factor 5: Self-care reduces demand	0.6598	5.2159				
	ANOVA Means for Factor 5			**5.4741**	5.1961	4.8333	**5.4626**
· Q11	Most Sx can be self-treated		4.8952				
	ANOVA Mean			**5.0889**	**5.0000**	4.4333	**5.1633**
· Q12	Self-management reduces chronic illness demand		5.0191				
	ANOVA Mean			**5.3333**	4.8627	4.6667	**5.3265**
· Q13	Increased self-efficacy reduces demand		5.7333				
	ANOVA Mean			**6.0000**	5.7255	5.4000	**5.8980**
F06	Factor 6: HP responsibility?	-0.9284	3.9381				
	ANOVA Mean			**5.9556**	5.5490	5.3333	5.6735
		**Bold = statistically different group					

APPENDIX G: Significant Open-Question Differences By Independent Variables

Appendix G: Significant Open-Question Differences by Independent Variables

Written Responses to Open-Questions

	Total Returned Surveys	Total (210)				
	Barriers	# present	% of 210	% of 353	Cum %	
WR25	Understanding	79	37.6%	22.4%	22.4%	
WR24	Culture	75	35.7%	21.2%	43.6%	
WR21	Cost	65	31.0%	18.4%	62.0%	
WR23	System	53	25.2%	15.0%	77.1%	
WR22	Time to Benefit	38	18.1%	10.8%	87.8%	
WR29	Responsibility	22	10.5%	6.2%	94.1%	
WR26	Perceptions	16	7.6%	4.5%	98.6%	
WR27	Rapid Change	3	1.4%	0.8%	99.4%	
WR28	Longevity	2	1.0%	0.6%	100.0%	
	Total	353		100.0%		
	Success Factors	# present	% of 210	% of 369	Cum %	
WR35	Healthier Lifestyles	137	65.2%	37.1%	37.1%	
WR34	Decreased Utilization	92	43.8%	24.9%	62.1%	
WR31	Positive Outcomes	63	30.0%	17.1%	79.1%	
WR33	Cost Effectiveness	33	15.7%	8.9%	88.1%	
WR32	PPIP	17	8.1%	4.6%	92.7%	
WR36	System values health	15	7.1%	4.1%	96.7%	
WR37	Assigned responsibility	12	5.7%	3.3%	100.0%	
		369		100.0%		

Frequency of the number of responses per survey

# comments per case	Frequency	% Total	Cum %
0	30	14.3%	14.3%
1	74	35.2%	49.5%
2	59	28.1%	77.6%
3	31	14.8%	92.4%
4	12	5.7%	98.1%
5	4	1.9%	100.0%
	210	100.0%	

# comments per case	Frequency	% Total	Cum %
0	38	18.1%	18.1%
1	49	23.3%	41.4%
2	67	31.9%	73.3%
3	42	20.0%	93.3%
4	11	5.2%	98.5%
5	2	1.0%	99.5%
6	1	0.5%	100.0%
	210	100.0%	

Appendix G: Significant Open-Question Differences by Independent Variables

Written Responses to Open-Questions

	Army Returned Surveys	Total (115)			
	Barriers	# present	% of 115	% of 177	Cum %
WR21	Cost	45	39.1%	25.4%	25.4%
WR24	Culture	37	32.2%	20.9%	46.3%
WR25	Understanding	36	31.3%	20.3%	66.7%
WR22	Time to Benefit	23	20.0%	13.0%	79.7%
WR23	System	21	18.3%	11.9%	91.5%
WR26	Perceptions	7	6.1%	4.0%	95.5%
WR27	Rapid Change	3	2.6%	1.7%	97.2%
WR29	Responsibility	3	2.6%	1.7%	98.9%
WR28	Longevity	2	1.7%	1.1%	100.0%
		177		100.0%	
	Success Factors	# present	% of 115	% of 197	Cum %
WR35	Healthier Lifestyles	74	64.3%	37.6%	37.6%
WR34	Decreased Utilization	54	47.0%	27.4%	65.0%
WR31	Positive Outcomes	29	25.2%	14.7%	79.7%
WR33	Cost Effectiveness	18	15.7%	9.1%	88.8%
WR32	PPIP	13	11.3%	6.6%	95.4%
WR36	System values health	6	5.2%	3.0%	98.5%
WR37	Assigned responsibility	3	2.6%	1.5%	100.0%
		197		100.0%	

Frequency of the number of responses per Army survey

# comments per case	Frequency	% Total	Cum %
0	15	13.0%	13.0%
1	48	41.7%	54.8%
2	34	29.6%	84.3%
3	12	10.4%	94.8%
4	5	4.3%	99.1%
5	1	0.9%	100.0%
		100.0%	

# comments per case	Frequency	% Total	Cum %
0	19	16.5%	16.5%
1	34	29.6%	46.1%
2	31	27.0%	73.0%
3	24	20.9%	93.9%
4	6	5.2%	99.1%
5	1	0.9%	100.0%
		100.0%	

	Navy Returned Surveys	Total (95)			
	Barriers	# present	% of 95	% of 176	Cum %
WR25	Understanding	43	45.3%	24.4%	24.4%
WR24	Culture	38	40.0%	21.6%	46.0%
WR23	System	32	33.7%	18.2%	64.2%
WR21	Cost	20	21.1%	11.4%	75.6%
WR29	Responsibility	19	20.0%	10.8%	86.4%
WR22	Time to Benefit	15	15.8%	8.5%	94.9%
WR26	Perceptions	9	9.5%	5.1%	100.0%
WR27	Rapid Change	0	0.0%	0.0%	100.0%
WR28	Longevity	0	0.0%	0.0%	100.0%
		176		100.0%	
	Success Factors	# present	% of 95	% of 172	Cum %
WR35	Healthier Lifestyles	63	66.3%	36.6%	36.6%
WR34	Decreased Utilization	38	40.0%	22.1%	58.7%
WR31	Positive Outcomes	34	35.8%	19.8%	78.5%
WR33	Cost Effectiveness	15	15.8%	8.7%	87.2%
WR36	System values health	9	9.5%	5.2%	92.4%
WR37	Assigned responsibility	9	9.5%	5.2%	97.7%
WR32	PPIP	4	4.2%	2.3%	100.0%
		172		100.0%	

Frequency of the number of responses per Navy survey

# comments per case	Frequency	% Total	Cum %
0	15	15.8%	15.8%
1	26	27.4%	43.2%
2	25	26.3%	69.5%
3	19	20.0%	89.5%
4	7	7.4%	96.8%
5	3	3.2%	100.0%
		100.0%	

# comments per case	Frequency	% Total	Cum %
0	19	20.0%	20.0%
1	15	15.8%	35.8%
2	36	37.9%	73.7%
3	18	18.9%	92.6%
4	5	5.3%	97.9%
5	1	1.1%	98.9%
6	1	1.1%	100.0%
		100.0%	

Appendix G: Significant Open-Question Differences by Independent Variables

	Statistically Significant Differences by Kruskal-Wallis 1-way ANOVA																				
		Sig.	Army	Navy	Sig.	MC	MSC	NC	Sig.	CO	DCCS	DCA	NC	Sig.	MEDCEN	HOSP	CLINIC	Sig.	CONUS	OCONUS
	Barriers	Mean Ranks			Mean Ranks				Mean Ranks					Mean Ranks				Mean Ranks		
WR21	Cost	0.0049	114.09	95.11	0.0461	103.02	93.32	113.72	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR22	Time to Benefit	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR23	System	0.0061	97.58	115.08	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR24	Culture	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.0131	101.13	124.23
WR25	Understanding	0.0381	98.87	113.53	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR26	Perceptions	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR27	Rapid Change	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.0034	107.32	97.77	97.00	NS	NS	NS
WR28	Longevity	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR29	Responsibility	0.0000	97.24	115.50	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.0126	108.13	93.67	107.10	0.0094	102.41	117.89
	Success Factors																			
WR31	Positive Outcomes	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR32	PPIP	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR33	Cost Effectiveness	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR34	Decreased Utilization	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR35	Healthier Lifestyles	NS	NS	NS	0.0178	105.46	90.87	114.03	0.0201	105.61	101.32	89.67	118.67	NS	NS	NS	NS	NS	NS	NS
WR36	System values health	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR37	Assigned responsibility	0.0333	102.24	109.45	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.0175	103.20	113.93

APPENDIX H: Dependent Variable Correlation Table

Appendix H: Dependent Variable Correlation Table (Pearson Correlation Coefficient: two-tailed significance.)

	F1	F2	F3	F4	F5	F6	F7	F8	F9	FM3	FM6	Q1	Q2	Q3	Q4	Q5	Q6
F1	"	NS	0.000	NS	0.000	NS	0.045	0.000	0.006	0.000	0.000	NS	NS	NS	NS	NS	0.001
F2	NS	"	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F3	0.000	NS	"	NS	0.000	NS	NS	0.000	NS	0.000	NS	NS	NS	NS	NS	NS	0.050
F4	NS	NS	NS	"	NS	NS	0.002	NS	NS	NS	0.032	0.000	0.000	0.000	0.000	NS	NS
F5	0.000	NS	0.000	NS	"	NS	0.012	0.000	0.047	0.000	0.000	NS	NS	NS	0.000	NS	0.018
F6	NS	NS	NS	NS	NS	"	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F7	0.045	NS	NS	0.002	0.012	NS	"	NS	NS	NS	0.051	NS	0.001	0.030	0.000	0.000	NS
F8	0.000	NS	0.000	NS	0.000	NS	NS	"	NS	0.000	0.023	NS	NS	NS	NS	NS	NS
F9	0.006	NS	NS	NS	0.047	NS	NS	NS	"	NS	0.038	NS	NS	NS	NS	NS	NS
FM3	0.000	NS	0.000	NS	0.000	NS	NS	0.000	NS	"	0.003	NS	NS	0.045	NS	NS	NS
FM6	0.000	NS	NS	0.032	0.000	NS	0.051	0.023	0.038	0.003	"	NS	0.028	NS	0.015	NS	0.008
Q1	NS	NS	NS	0.000	NS	NS	NS	NS	NS	NS	NS	"	0.000	0.000	0.034	NS	NS
Q2	NS	NS	NS	0.000	NS	NS	0.001	NS	NS	NS	0.028	0.000	"	0.000	0.000	NS	NS
Q3	NS	NS	NS	0.000	NS	NS	0.030	NS	NS	0.045	NS	0.000	0.000	"	0.001	NS	NS
Q4	NS	NS	NS	0.000	0.000	NS	0.000	NS	NS	NS	0.015	0.034	0.000	0.001	"	0.000	NS
Q5	NS	NS	NS	NS	NS	NS	0.000	NS	NS	NS	NS	NS	NS	NS	0.000	"	NS
Q6	0.001	NS	0.050	NS	0.018	NS	NS	NS	NS	NS	0.008	NS	NS	NS	NS	NS	"
Q7	0.000	NS	0.000	NS	0.000	NS	NS	0.000	NS	0.000	0.011	NS	NS	0.027	NS	NS	0.031
Q8	NS	NS	0.002	NS	NS	NS	0.012	0.000	NS	NS	NS	NS	NS	NS	0.024	NS	NS
Q9	0.000	NS	0.000	NS	NS	NS	NS	NS	NS	0.000	0.016	NS	NS	NS	NS	NS	NS
Q10	0.000	NS	0.000	NS	0.000	NS	NS	0.001	NS	0.000	0.046	NS	NS	NS	NS	NS	NS
Q11	0.027	NS	NS	NS	0.000	NS	NS	0.033	NS	NS	NS	NS	NS	NS	0.018	NS	NS
Q12	0.000	NS	0.000	NS	0.000	NS	0.050	0.037	NS	0.000	0.000	NS	NS	NS	0.004	NS	0.041
Q13	0.000	NS	0.000	NS	0.000	NS	0.032	0.000	NS	0.000	0.000	NS	NS	NS	0.000	NS	0.024
Q14	0.000	NS	0.000	NS	0.000	NS	NS	0.000	0.030	0.000	0.039	0.019	NS	NS	NS	NS	0.056
Q15	0.000	NS	0.001	NS	0.000	NS	NS	0.000	0.034	0.000	0.052	NS	NS	0.029	NS	NS	0.013
Q16	0.000	NS	0.035	NS	NS	NS	NS	0.000	NS	0.010	NS	NS	NS	NS	NS	NS	NS
Q17	0.000	NS	0.000	NS	0.000	NS	NS	0.000	NS	0.000	0.039	NS	NS	NS	NS	NS	0.004
Q18	0.000	NS	NS	NS	0.000	NS	NS	0.001	0.047	0.000	0.000	NS	NS	NS	NS	NS	0.047
Q19	0.000	NS	0.003	NS	0.000	NS	0.005	0.000	0.046	0.000	0.002	NS	NS	NS	0.009	0.050	NS
Q20	0.000	NS	NS	NS	0.000	NS	0.001	0.015	0.036	0.000	0.001	NS	0.010	NS	0.039	0.001	NS
Q21	0.000	NS	0.005	NS	0.003	NS	NS	0.016	0.021	0.000	0.000	NS	NS	NS	NS	NS	0.003
Q22	0.000	NS	0.002	0.010	0.000	NS	NS	0.021	0.001	0.000	0.000	NS	0.029	0.014	0.010	NS	0.041
Q23	0.030	NS	NS	NS	NS	NS	NS	NS	0.000	NS	NS	NS	NS	NS	0.020	NS	NS
Q24	NS	NS	NS	NS	NS	NS	NS	NS	0.000	NS	NS	NS	NS	NS	NS	NS	NS
Q25	0.000	NS	NS	NS	0.001	NS	NS	0.008	NS	0.000	0.003	NS	NS	NS	NS	NS	0.054
Q26	0.018	NS	NS	NS	0.003	0.000	0.017	NS	NS	NS	0.000	NS	NS	NS	0.011	NS	0.038
Q27	NS	0.000	NS	NS	NS	NS	NS	NS	NS	NS	0.019	NS	NS	NS	NS	NS	NS
Q28	NS	0.000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q29	NS	0.000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q30	NS	NS	NS	0.051	0.002	0.000	NS	0.008	0.009	0.001	0.000	NS	NS	NS	NS	NS	0.024
T9	0.000	NS	0.000	NS	NS	NS	NS	NS	NS	0.000	0.016	NS	NS	NS	NS	NS	NS
T26	NS	NS	NS	NS	0.003	0.000	0.017	NS	NS	NS	0.000	NS	NS	NS	0.011	NS	0.038
WR21	0.003	NS	NS	NS	NS	NS	NS	NS	NS	0.025	0.052	NS	NS	NS	NS	NS	0.021
WR22	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR23	0.012	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR24	NS	NS	NS	NS	NS	NS	NS	NS	0.002	NS	NS	NS	NS	NS	NS	NS	NS
WR25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.039	NS	NS	NS	NS	NS	NS
WR26	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR27	NS	NS	NS	NS	NS	NS	0.008	NS	NS	NS	NS	NS	NS	NS	NS	0.001	NS
WR28	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR29	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR31	NS	NS	NS	NS	NS	NS	NS	0.019	NS	NS	NS	NS	0.022	NS	NS	NS	NS
WR32	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR33	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.020	NS	NS	NS	NS	NS
WR34	0.020	NS	NS	0.040	NS	NS	NS	NS	NS	0.042	NS	0.005	NS	NS	NS	NS	NS
WR35	0.002	0.017	NS	NS	0.000	NS	NS	NS	0.008	NS	0.005	NS	NS	NS	NS	NS	0.200
WR36	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR37	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Count =	31	4	19	9	27	3	16	23	15	25	32	7	9	9	18	5	19

Appendix H: Dependent Variable Correlation Table (Pearson Correlation Coefficient: two-tailed significance.)

	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23
F1	**0.000**	NS	**0.000**	**0.000**	**0.027**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.030**
F2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F3	**0.000**	**0.002**	**0.000**	**0.000**	NS	**0.000**	**0.000**	**0.000**	**0.001**	**0.035**	**0.000**	NS	**0.003**	NS	**0.005**	**0.002**	NS
F4	NS	NS	NS	NS	NS	NS	NS	**0.041**	NS	NS	NS	NS	NS	NS	NS	**0.010**	NS
F5	**0.000**	NS	NS	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	NS	**0.000**	**0.000**	**0.000**	**0.000**	**0.003**	**0.000**	NS
F6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.008	NS	NS	NS	NS	NS	NS
F7	NS	**0.012**	NS	NS	NS	**0.050**	**0.032**	NS	NS	NS	NS	NS	**0.005**	**0.001**	NS	NS	NS
F8	**0.000**	**0.000**	NS	**0.001**	**0.033**	**0.037**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.015**	**0.016**	**0.021**	NS
F9	NS	NS	NS	NS	NS	NS	NS	**0.030**	**0.034**	NS	NS	**0.047**	**0.046**	**0.036**	**0.021**	**0.001**	**0.000**
FM3	**0.000**	NS	**0.000**	**0.000**	NS	**0.000**	**0.000**	**0.000**	**0.000**	**0.010**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	NS
FM6	**0.011**	NS	**0.016**	**0.046**	NS	**0.000**	**0.000**	**0.039**	**0.052**	NS	**0.039**	**0.000**	**0.002**	**0.001**	**0.000**	**0.000**	NS
Q1	NS	NS	NS	NS	NS	NS	NS	**0.019**	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.010**	NS	**0.029**	NS
Q3	**0.027**	NS	NS	NS	NS	NS	NS	NS	**0.029**	NS	NS	NS	NS	NS	NS	**0.014**	NS
Q4	NS	**0.024**	NS	NS	**0.018**	**0.004**	**0.000**	NS	NS	NS	NS	NS	**0.009**	**0.039**	NS	**0.010**	**0.020**
Q5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.050**	**0.001**	NS	NS	NS
Q6	**0.031**	NS	NS	NS	NS	**0.041**	**0.024**	**0.056**	**0.013**	NS	**0.004**	**0.047**	NS	NS	**0.003**	**0.041**	NS
Q7	"	NS	**0.000**	**0.000**	NS	**0.000**	**0.000**	**0.000**	**0.000**	**0.005**	**0.000**	**0.002**	**0.000**	**0.007**	**0.000**	**0.000**	NS
Q8	NS	"	**0.006**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q9	**0.000**	**0.006**	"	**0.000**	NS	NS	**0.006**	**0.025**	NS	NS	**0.000**	**0.005**	**0.010**	**0.005**	**0.013**	**0.004**	NS
Q10	**0.000**	NS	**0.000**	"	NS	**0.000**	**0.000**	**0.000**	**0.000**	**0.037**	**0.000**	**0.004**	**0.001**	**0.005**	**0.000**	**0.000**	NS
Q11	NS	NS	NS	NS	"	**0.000**	**0.000**	NS	**0.026**	NS	NS	NS	0.009	NS	NS	**0.007**	NS
Q12	**0.000**	NS	NS	**0.000**	**0.000**	"	**0.000**	**0.001**	**0.001**	NS	**0.000**	**0.000**	**0.000**	**0.000**	**0.004**	**0.000**	NS
Q13	**0.000**	NS	**0.006**	**0.000**	**0.000**	**0.000**	"	**0.000**	**0.000**	**0.016**	**0.000**	**0.000**	**0.000**	**0.001**	**0.005**	**0.000**	NS
Q14	**0.000**	NS	**0.025**	**0.000**	NS	**0.001**	**0.000**	"	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.006**	**0.002**	**0.000**	NS
Q15	**0.000**	NS	NS	**0.000**	**0.026**	**0.001**	**0.000**	**0.000**	"	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.038**
Q16	**0.005**	NS	NS	**0.037**	NS	NS	**0.016**	**0.000**	**0.000**	"	**0.000**	**0.000**	**0.000**	**0.002**	**0.000**	NS	NS
Q17	**0.000**	NS	**0.000**	**0.000**	NS	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	"	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	NS
Q18	**0.002**	NS	**0.005**	**0.004**	NS	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	"	**0.000**	**0.000**	**0.000**	**0.000**	NS
Q19	**0.000**	NS	**0.010**	**0.001**	**0.009**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	"	**0.000**	**0.000**	**0.000**	**0.044**
Q20	**0.007**	NS	**0.005**	**0.005**	NS	**0.000**	**0.001**	**0.006**	**0.000**	**0.002**	**0.000**	**0.000**	**0.000**	"	**0.000**	**0.000**	NS
Q21	**0.000**	NS	**0.013**	**0.000**	NS	**0.004**	**0.005**	**0.002**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	"	**0.000**	**0.053**
Q22	**0.000**	NS	**0.004**	**0.000**	**0.007**	**0.000**	**0.000**	**0.000**	**0.000**	NS	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	"	NS
Q23	NS	NS	NS	NS	NS	NS	NS	NS	**0.038**	NS	NS	NS	**0.044**	NS	**0.053**	NS	"
Q24	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.010**	**0.046**
Q25	**0.002**	NS	**0.013**	**0.008**	NS	**0.000**	**0.003**	NS	**0.000**	**0.002**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.058**
Q26	NS	NS	NS	NS	NS	**0.006**	**0.004**	NS	NS	NS	NS	**0.002**	**0.025**	NS	NS	0.011	NS
Q27	NS	NS	**0.054**	NS	NS	NS	NS	NS	**0.029**	**0.014**	NS	NS	NS	NS	NS	NS	NS
Q28	NS	NS	NS	NS	**0.017**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q29	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q30	**0.006**	NS	**0.004**	**0.047**	NS	**0.003**	**0.004**	**0.020**	**0.036**	NS	**0.001**	**0.000**	**0.004**	**0.000**	**0.000**	**0.000**	NS
T9	**0.000**	**0.006**	**0.000**	**0.000**	NS	NS	**0.006**	**0.025**	NS	NS	**0.000**	**0.005**	**0.010**	**0.005**	**0.013**	**0.004**	NS
T26	NS	NS	NS	NS	NS	**0.006**	**0.004**	NS	NS	NS	NS	**0.002**	**0.025**	NS	NS	**0.011**	NS
WR21	NS	**0.027**	NS	**0.038**	NS	**0.043**	NS	NS	NS	NS	**0.043**	**0.055**	**0.030**	**0.028**	**0.006**	**0.004**	NS
WR22	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.003**	NS	NS	NS	NS	NS	NS	NS
WR23	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.022**	NS	**0.018**	**0.027**	NS
WR24	NS	NS	NS	NS	NS	**0.043**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR25	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR26	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR28	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR29	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR31	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.019**	NS	NS	NS	NS	NS	NS
WR32	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.039**	NS	NS	NS	NS	NS	NS	NS
WR33	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
WR34	NS	NS	NS	**0.010**	NS	NS	NS	**0.013**	0.005	NS	NS	**0.003**	NS	NS	0.021	NS	NS
WR35	NS	NS	NS	NS	**0.002**	**0.009**	**0.004**	NS	0.015	NS	NS	NS	**0.009**	**0.002**	**0.029**	**0.002**	**0.020**
WR36	NS	**0.044**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.036**	NS	NS	NS	**0.049**
WR37	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Count =	24	8	19	24	11	28	29	26	28	18	26	27	34	28	29	34	10

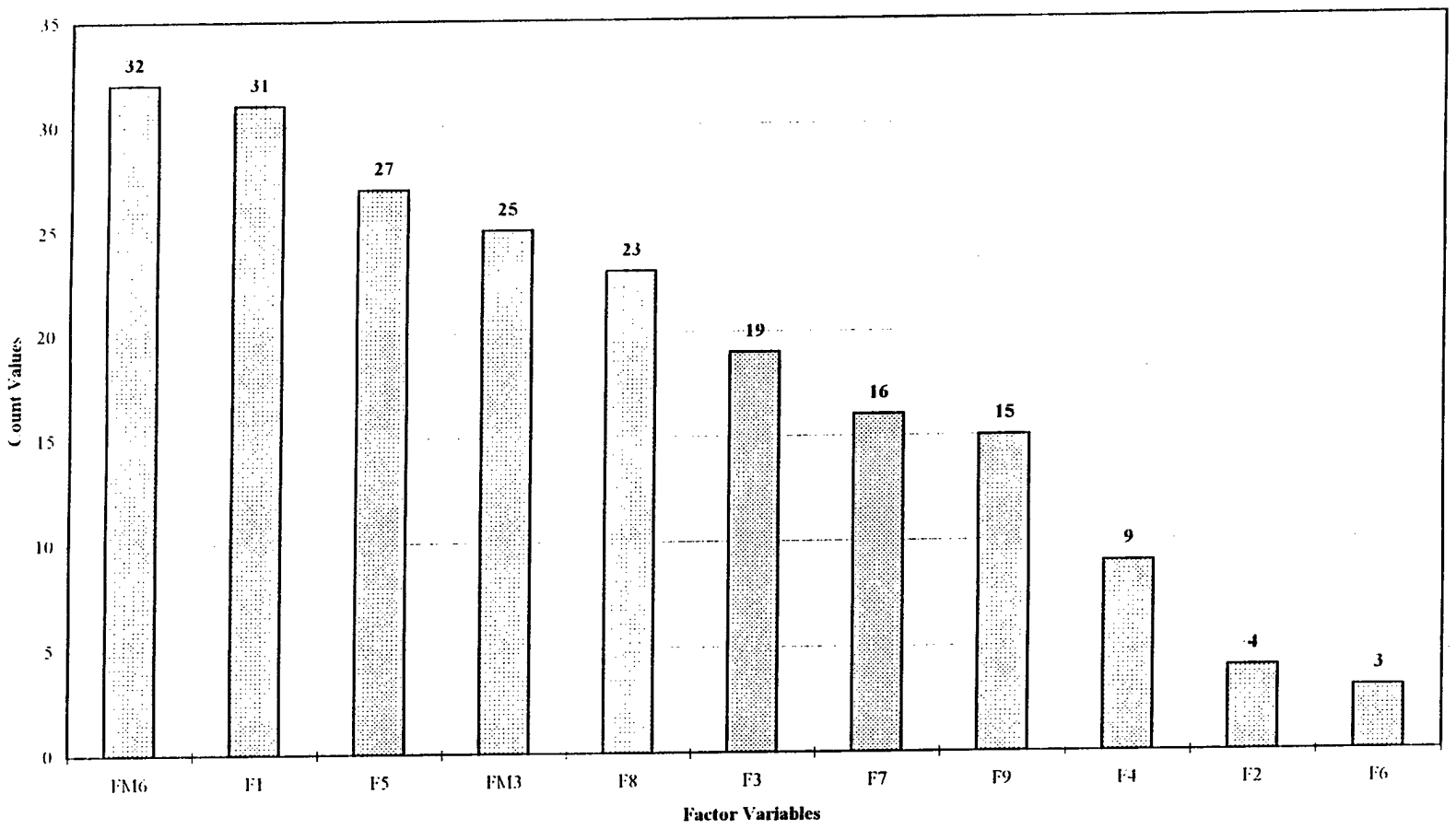
Appendix H: Dependent Variable Correlation Table (Pearson Correlation Coefficient: two-tailed significance.)

	Q24	Q25	Q26	Q27	Q28	Q29	Q30	T09	T26	WR21	WR22	WR23	WR24	WR25	WR26	WR27	WR28
F1	NS	**0.000**	**0.018**	NS	NS	NS	**0.000**	**0.000**	**0.018**	**0.003**	NS	**0.012**	NS	NS	NS	NS	NS
F2	NS	NS	NS	**0.000**	**0.000**	**0.000**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F3	NS	NS	NS	NS	NS	NS	NS	**0.000**	NS	NS	NS	NS	NS	NS	NS	NS	NS
F4	NS	NS	NS	NS	NS	NS	**0.051**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F5	NS	**0.001**	**0.003**	NS	NS	NS	**0.002**	NS	**0.003**	NS	NS	NS	NS	NS	NS	NS	NS
F6	NS	NS	**0.000**	NS	NS	NS	**0.000**	NS	**0.000**	NS	NS	NS	NS	NS	NS	NS	NS
F7	NS	NS	**0.017**	NS	NS	NS	NS	NS	**0.017**	NS	NS	NS	NS	NS	NS	**0.008**	NS
F8	NS	**0.008**	NS	NS	NS	NS	**0.008**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F9	**0.000**	NS	NS	NS	NS	NS	**0.009**	NS	NS	NS	NS	NS	**0.002**	NS	NS	NS	NS
FM3	NS	**0.000**	NS	NS	NS	NS	**0.001**	**0.000**	NS	**0.025**	NS	NS	NS	NS	NS	NS	NS
FM6	NS	**0.003**	**0.000**	**0.019**	NS	NS	**0.000**	**0.016**	**0.000**	NS	NS	NS	NS	**0.039**	NS	NS	NS
Q1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q4	NS	NS	**0.011**	NS	NS	NS	NS	NS	**0.011**	NS	NS	NS	NS	NS	NS	NS	NS
Q5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.001**	NS
Q6	NS	**0.054**	**0.038**	NS	NS	NS	**0.024**	NS	**0.038**	**0.021**	NS	NS	NS	NS	NS	NS	NS
Q7	NS	**0.002**	NS	NS	NS	NS	**0.006**	**0.000**	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q8	NS	NS	NS	NS	NS	NS	NS	**0.006**	NS	**0.027**	NS	NS	NS	NS	NS	NS	NS
Q9	NS	**0.013**	NS	**0.054**	NS	NS	**0.004**	**0.000**	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q10	NS	**0.008**	NS	NS	NS	NS	**0.047**	**0.000**	NS	0.038	NS	NS	NS	NS	NS	NS	NS
Q11	NS	NS	NS	NS	**0.017**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q12	NS	**0.000**	**0.006**	NS	NS	NS	**0.003**	NS	**0.006**	**0.043**	NS	NS	**0.043**	NS	NS	NS	NS
Q13	NS	**0.003**	**0.004**	NS	NS	NS	**0.004**	**0.006**	**0.004**	NS	NS	NS	NS	NS	NS	NS	NS
Q14	NS	NS	NS	NS	NS	NS	**0.020**	**0.025**	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q15	NS	**0.000**	NS	**0.029**	NS	NS	**0.036**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q16	NS	**0.002**	NS	**0.014**	NS	NS	NS	NS	NS	NS	**0.003**	NS	NS	NS	NS	NS	NS
Q17	NS	**0.000**	NS	NS	NS	NS	**0.001**	**0.000**	NS	**0.043**	NS	NS	NS	NS	NS	NS	NS
Q18	NS	**0.000**	**0.002**	NS	NS	NS	**0.000**	**0.005**	**0.002**	NS	NS	NS	NS	NS	NS	NS	NS
Q19	NS	**0.000**	**0.025**	NS	NS	NS	**0.004**	**0.010**	**0.025**	**0.030**	NS	**0.022**	NS	NS	NS	NS	NS
Q20	NS	**0.000**	NS	NS	NS	NS	**0.000**	**0.005**	NS	**0.028**	NS	NS	NS	NS	NS	NS	NS
Q21	NS	**0.000**	NS	NS	NS	NS	**0.000**	**0.013**	NS	**0.006**	NS	**0.018**	NS	NS	NS	NS	NS
Q22	**0.010**	**0.000**	**0.011**	NS	NS	NS	**0.000**	**0.004**	**0.011**	**0.004**	NS	**0.027**	NS	NS	NS	NS	NS
Q23	**0.046**	**0.058**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q24	"	NS	NS	NS	NS	NS	**0.049**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q25	NS	"	NS	NS	NS	NS	**0.000**	**0.013**	NS	**0.018**	NS	NS	NS	NS	NS	NS	NS
Q26	NS	NS	"	NS	NS	NS	**0.000**	NS	**0.000**	NS	NS	NS	NS	**0.009**	NS	NS	NS
Q27	NS	NS	NS	"	**0.000**	**0.000**	**0.030**	**0.054**	NS	NS	**0.046**	NS	NS	NS	NS	NS	NS
Q28	NS	NS	NS	**0.000**	"	**0.000**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q29	NS	NS	NS	**0.000**	**0.000**	"	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Q30	**0.049**	**0.000**	**0.000**	**0.030**	NS	NS	"	**0.004**	**0.000**	**0.037**	NS	NS	NS	NS	NS	NS	NS
T9	NS	**0.013**	NS	**0.054**	NS	NS	**0.004**	"	NS	NS	NS	NS	NS	NS	NS	NS	NS
T26	NS	NS	**0.000**	NS	NS	NS	**0.000**	NS	"	NS	NS	NS	NS	**0.009**	NS	NS	NS
WR21	NS	**0.018**	NS	NS	NS	NS	**0.037**	NS	NS	"	NS	NS	**0.053**	NS	NS	NS	NS
WR22	NS	NS	NS	**0.046**	NS	NS	NS	NS	NS	NS	"	NS	NS	NS	NS	NS	**0.002**
WR23	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	"	NS	NS	NS	NS	NS
WR24	**0.021**	NS	NS	NS	NS	NS	NS	NS	NS	**0.053**	NS	NS	"	**0.009**	NS	NS	**0.057**
WR25	NS	NS	**0.009**	NS	NS	NS	NS	NS	**0.009**	NS	NS	NS	**0.009**	"	NS	NS	NS
WR26	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	"	NS	NS
WR27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	"	NS
WR28	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.008**	NS	**0.057**	NS	NS	NS	"
WR29	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.001**	NS
WR31	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.003**	NS	**0.018**	**0.051**	NS	NS	**0.031**
WR32	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.002**	NS	NS	NS	NS	NS	NS	NS
WR33	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.000**	NS	NS
WR34	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.024**	NS	NS	NS	NS	NS	NS	NS
WR35	NS	NS	**0.013**	NS	**0.042**	**0.013**	**0.040**	NS	**0.013**	**0.039**	**0.050**	**0.008**	**0.001**	**0.054**	NS	NS	NS
WR36	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**0.018**
WR37	NS	NS	NS	NS	NS	NS	**0.032**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Count =	5	23	16	10	5	4	31	19	16	17	5	5	"	6	1	3	4

	WR29	WR31	WR32	WR33	WR34	WR35	WR36	WR37
F1	NS	NS	NS	NS	**0.020**	**0.002**	NS	NS
F2	NS	NS	NS	NS	NS	NS	NS	NS
F3	NS	NS	NS	NS	NS	NS	NS	NS
F4	NS	NS	NS	NS	**0.040**	NS	NS	NS
F5	NS	NS	NS	NS	NS	**0.000**	NS	NS
F6	NS	NS	NS	NS	NS	NS	NS	NS
F7	NS	NS	NS	NS	NS	NS	NS	NS
F8	NS	**0.019**	NS	NS	NS	NS	NS	NS
F9	NS	NS	NS	NS	NS	NS	NS	NS
FM3	NS	NS	NS	NS	**0.042**	NS	NS	NS
FM6	NS	NS	NS	NS	NS	**0.005**	NS	NS
Q1	NS	NS	NS	**0.020**	**0.005**	NS	NS	NS
Q2	NS	**0.022**	NS	NS	NS	NS	NS	NS
Q3	NS	NS	NS	NS	NS	NS	NS	NS
Q4	NS	NS	NS	NS	NS	NS	NS	NS
Q5	NS	NS	NS	NS	NS	NS	NS	NS
Q6	NS	NS	NS	NS	NS	**0.020**	NS	NS
Q7	NS	NS	NS	NS	NS	NS	NS	NS
Q8	NS	NS	NS	NS	NS	NS	NS	NS
Q9	NS	NS	NS	NS	NS	NS	NS	NS
Q10	NS	NS	NS	NS	**0.010**	NS	NS	NS
Q11	NS	NS	NS	NS	NS	**0.002**	NS	NS
Q12	NS	NS	NS	NS	NS	**0.009**	NS	NS
Q13	NS	NS	NS	NS	NS	**0.004**	NS	NS
Q14	NS	NS	NS	NS	**0.013**	NS	NS	NS
Q15	NS	NS	NS	NS	**0.005**	NS	NS	NS
Q16	NS	NS	NS	NS	NS	NS	NS	NS
Q17	NS	**0.019**	NS	NS	NS	NS	NS	NS
Q18	NS	NS	NS	NS	**0.003**	NS	NS	NS
Q19	NS	NS	NS	NS	NS	**0.002**	NS	NS
Q20	NS	NS	NS	NS	NS	NS	NS	NS
Q21	NS	NS	NS	NS	**0.021**	**0.029**	NS	NS
Q22	NS	NS	NS	NS	NS	**0.002**	NS	NS
Q23	NS	NS	NS	NS	NS	**0.020**	**0.049**	NS
Q24	NS	NS	NS	NS	NS	NS	NS	NS
Q25	NS	NS	NS	NS	NS	NS	NS	NS
Q26	NS	NS	NS	NS	NS	**0.013**	NS	NS
Q27	NS	NS	NS	NS	NS	NS	NS	NS
Q28	NS	NS	NS	NS	NS	**0.042**	NS	NS
Q29	NS	NS	NS	NS	NS	**0.013**	NS	NS
Q30	NS	NS	NS	NS	NS	**0.040**	NS	NS
T9	NS	NS	NS	NS	NS	NS	NS	NS
T26	NS	NS	NS	NS	NS	**0.013**	NS	NS
WR21	NS	NS	**0.003**	NS	**0.024**	**0.039**	NS	NS
WR22	NS	**0.003**	NS	NS	NS	**0.050**	NS	NS
WR23	NS	NS	NS	NS	NS	**0.008**	NS	NS
WR24	NS	**0.018**	NS	NS	NS	**0.001**	NS	NS
WR25	NS	**0.051**	NS	NS	NS	**0.054**	NS	NS
WR26	NS	NS	**0.010**	**0.000**	NS	NS	NS	NS
WR27	**0.001**	NS	NS	NS	NS	NS	NS	NS
WR28	NS	**0.030**	NS	NS	NS	NS	**0.018**	NS
WR29	"	NS	NS	NS	NS	NS	NS	**0.000**
WR31	NS	"	NS	NS	NS	**0.005**	**0.041**	NS
WR32	NS	NS	"	NS	NS	NS	NS	NS
WR33	NS	NS	NS	"	**0.034**	**0.010**	**0.052**	NS
WR34	NS	NS	NS	**0.034**	"	**0.020**	NS	NS
WR35	NS	**0.005**	NS	**0.010**	**0.020**	"	**0.018**	NS
WR36	NS	**0.041**	NS	**0.052**	NS	**0.018**	"	**0.013**
WR37	**0.000**	NS	NS	NS	NS	NS	**0.013**	"
Count =	2	9	2	5	12	25	6	2

APPENDIX I: Column Charts; Number Of Significant Inter-Variable Correlations

Appendix I: Column Charts; Number of Significant Inter-Variable Correlations



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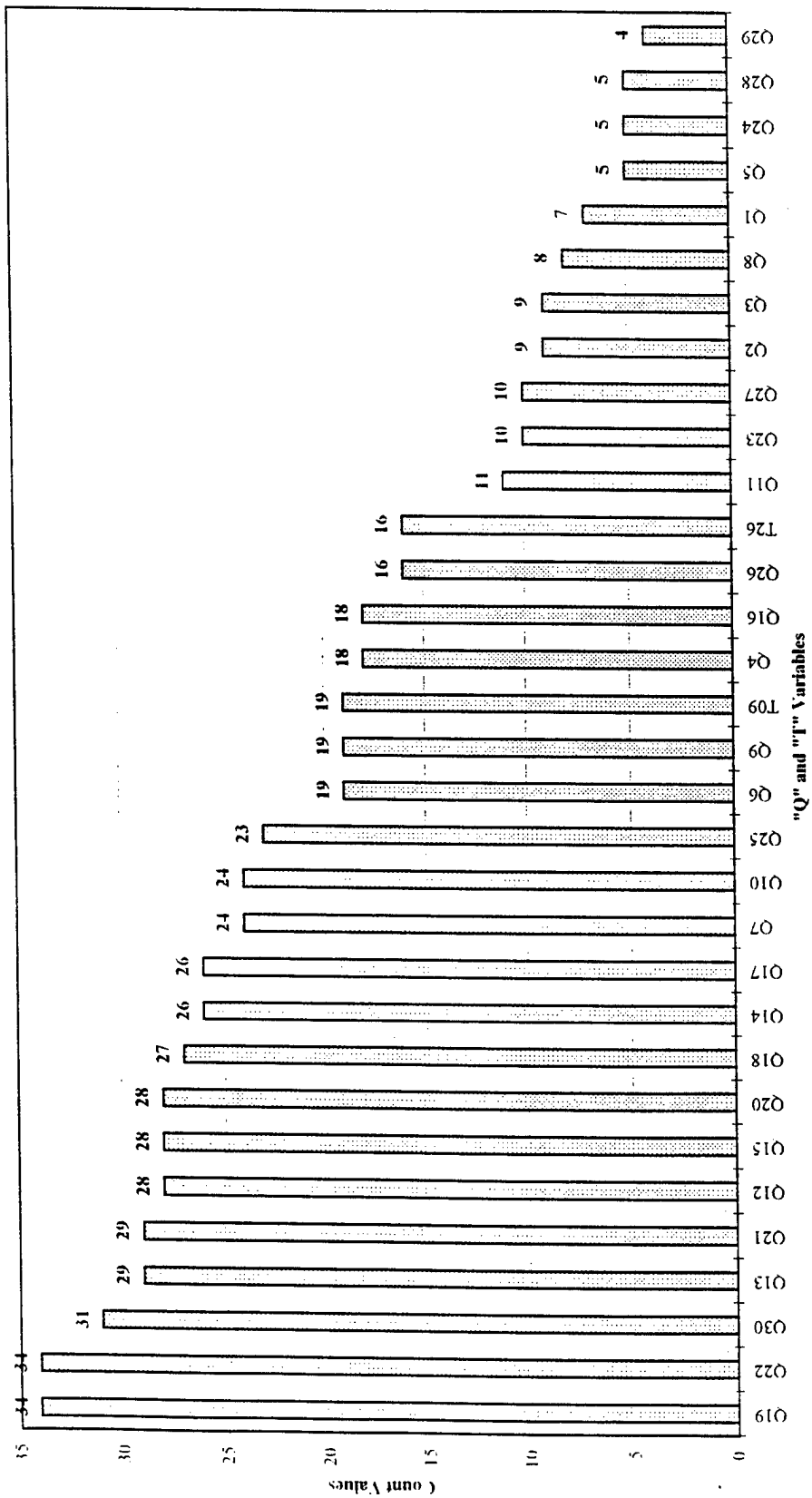

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